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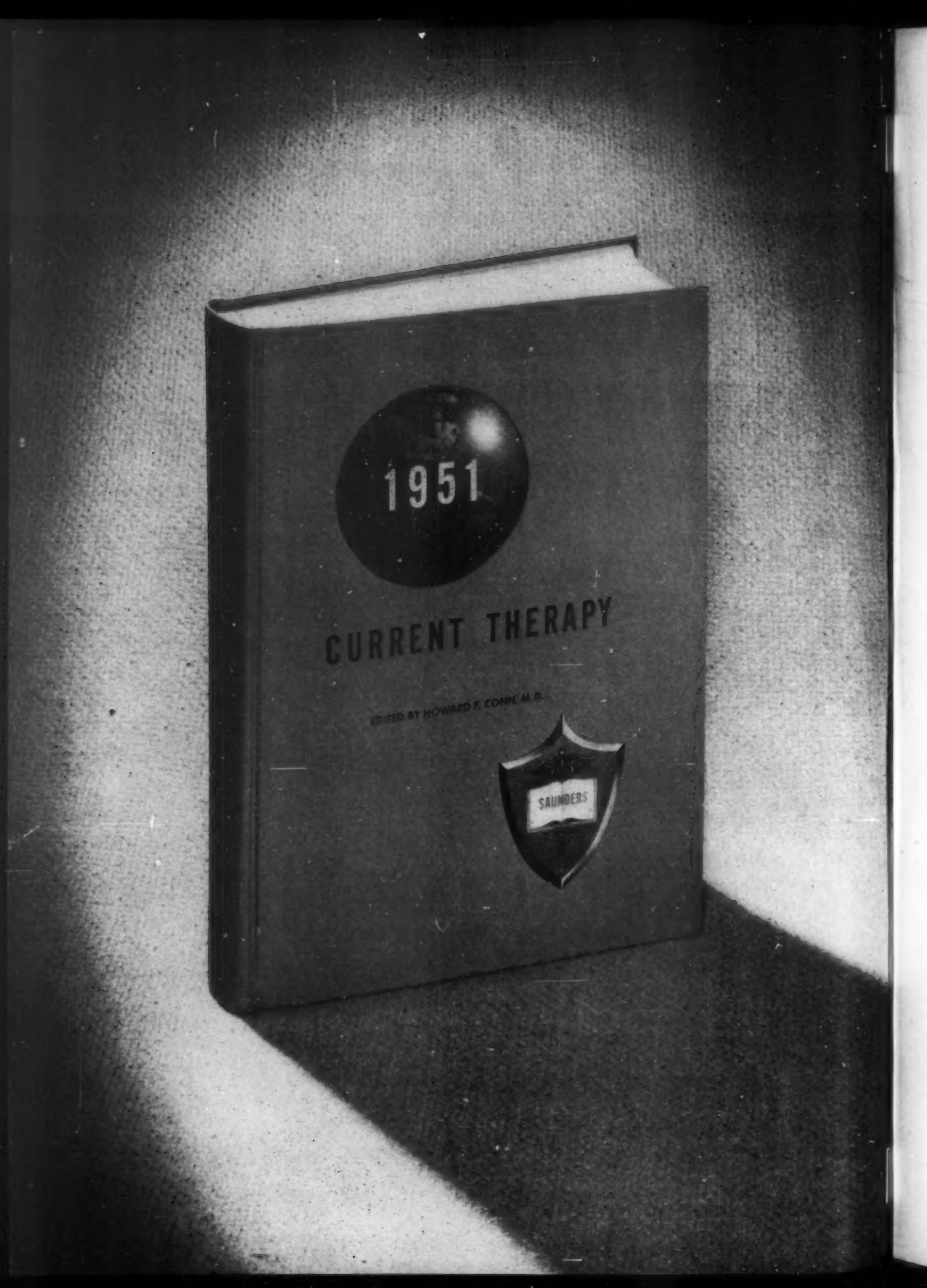
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EARLY CARE OF THE SERIOUSLY WOUNDED MAN *

Henry K. Beecher, M.D., Boston

The consequences to the human body are the same whether an artery is severed by a shell fragment or a broken windshield. Pressure on the thigh from the stones of a peasant's cottage in Italy produces exactly the same crush syndrome as the prolonged weight of an axle in Kansas. Moreover, the consequences of delayed treatment are the same in both places. There is a universality in these cause and effect relationships, a universality, too, in the principles of treatment that makes them apply to the thousands of victims of atomic violence as well as to a child whose tonsillectomy wound continues to bleed. There are various reasons why the principles and procedures evolved in World War II concerning the treatment of the wounded are not yet an adequate part of medical practice. When it comes to transmitting experience in a positive way, a curious but understandable human inertia appears. Negative advice is easily passed on: no physical effort is involved. Transmission of positive experience ("Give whole blood when blood is lost") requires laborious effort, and one looks around for easier ways out. Another, more creditable reason for failure to transfer widely many of the new practices of wartime to civil medicine may lie in the fact that these experiences often lacked controlled support. In many instances that requirement has been now provided. For the sake of both civil and military medicine it will be well to review recent practices and their foundations. It will be tragic if medical historians can look back on the World War II period and write of it as a time when so much was learned and so little remembered. The purpose of this paper is to epitomize one phase of that experience, an experience which at the time it was gained did not always have clear meaning but which has now, after many excursions in and out of the laboratory and after many controlled clinical experiments and broad applications in civil medicine, crystallized in terms that can be passed on with conviction, a conviction based on a sturdier foundation than clinical impression. Here, then, are the principles and procedures of importance in the early care of the wounded, in that crucial interval from the instant of wounding until the surgeon repairs the wound.

GENERAL CONSIDERATIONS

The aim of resuscitation is to make it possible for the severely wounded man to withstand evacuation from the site of wounding to the installation where initial surgical measures can be undertaken and then to support him through the stresses imposed by anesthesia and operation. Surgery is an inseparable part of resuscitation. Experience has shown that emergency surgery, whether civilian or military, is little if any more hurried than elective surgery. Emergency operation in the major body cavities requires on the average two hours. Resuscitation, if it is to fortify the patient for this strain, must be based on sound principles. It is essential that the operating surgeon share in the final preparations and in the decision as to the optimum time for surgical intervention. Experience has shown that the following general principles need emphasis:[1]

1. Speed in forward evacuation and preparation for surgery is urgent. Reduction in the time from wounding to surgery means the saving of extremities, the minimizing of deformity, the shortening of convalescence and the saving of lives. Every effort is bent toward reduction in evacuation time from the site of wounding to the hospital where definitive surgery can be done. Possibly there are some patients among those with minor extremity wounds who would profit by being held near the site of wounding for an hour or two, but to teach which ones would so profit is almost impossible. Moreover, if the rule were imperfectly applied, it might be disastrous in many cases. Death has occurred because of too slow evacuation.

2. The most efficient resuscitation is preventive. Economy of materials, of time and of lives will be effected by preventing the serious deterioration of the patient's condition. Much more of materials and effort is required to restore good condition than would have been needed to prevent the decline.

3. Resuscitation should be graded. It is important rapidly to restore a good blood color and the systolic blood pressure to an arbitrary level of about 85 mm. of mercury in subjects whose blood pressure had previously been normal. Once these things have been accomplished, the rate of infusion of blood or blood substitutes depends on several factors:

(*a*) Delayed blood transfusion: If blood for transfusion or operation will not be available for a matter of hours, infusion of plasma or other blood substitute should be rapid enough only to maintain the aforementioned state. More rapid admin-

*This article is based on material that was prepared for use within the Army at the request of Colonel Warner F. Bowers, Chief, Surgical Consultant's Division.

1. Beecher, H. K.: Resuscitation and Anesthesia for Wounded Men: The Management of Traumatic Shock, Springfield, Charles C Thomas, Publisher, 1949, p. 127.

istration of plasma will elevate the blood pressure to the level where bleeding will be renewed or increased, with further and perhaps disastrous loss of irreplaceable (for the time being) hemoglobin.

(*b*) Delayed operation: If a patient must await surgical intervention for a considerable period, even though blood may be available, there is no need to transfuse more rapidly than necessary to achieve these conditions, with one addition: when blood is available it is desirable to administer it until the skin loses the chill of shock and becomes warm. As long as the systolic blood pressure is not below a level of about 85 mm. of mercury, the mucous membranes of good color, the skin warm and the pulse of good quality, there is no need to administer further blood until surgical treatment is available. To administer blood beyond the quantity necessary to achieve the condition mentioned, before surgery is available, inevitably means that more blood must be used than would otherwise be the case. Blood or plasma will leak into traumatized regions and be needlessly wasted; the hazard of an unnecessary number of transfusions will be incurred. Even though time may show this hazard to be limited to the occasional administration of incompatible blood, it is a definite hazard. Moreover, reasonable economy of blood means that it will be more abundantly available when need for it is urgent (systolic blood pressure below 80 mm. of mercury, pulse of poor quality and patient cold and pallid).

(*c*) Surgery available: When surgery is available, further transfusion of blood is advisable so that a rising blood pressure is achieved at the time the anesthesia is started.

4. Complete restoration to normal of blood volume or blood pressure is not a necessary preliminary to successful surgery in previously healthy young men (and probably in the elderly as well, since the passage of time is against their best interests for several reasons). (It must be emphasized that there is no early correlation between hemoglobin or hematocrit levels and circulating blood volume.) Unquestionably, the consequences of the wound and of shock produce organic damage that cannot be overcome in an hour or so. Recovery from the damage produced by low blood pressure and by tissue anoxia probably requires many days. Practically, it is necessary to initiate the surgical procedure long before the consequences of shock can be fully overcome. Operation is undertaken as soon as experience has shown that the patient will tolerate it, indicated chiefly by a rising blood pressure (85 mm. of mercury or above), a falling pulse rate, a warm skin and good color of the mucous membranes. Delay in surgical intervention beyond the accomplishment of these things requires the constant support of the patient by blood or blood substitutes and, in the end, the use of needlessly large total quantities of these agents. Delay means that infection will have progressed. This is closely allied to a rising death rate. Some patients, more often those with penetrating wounds of the abdomen, will fail to show any response to whole blood. Generally these patients are found to have continuing concealed bleeding or wide contamination of the peritoneal cavity. The failure of response to the usual resuscitative measures calls for a critical decision: the necessity of undertaking operation in the patient in poor condition. This bold decision may be life saving.

FIELD CARE PRIOR TO HOSPITAL ADMISSION

Only the simplest procedures are undertaken before the hospital is reached, and these with the single object of making the wounded man transportable. Priority is given to the establishment of a clear airway; splints and tourniquets are applied (see below), hemorrhage staunched, temporary bandages placed, sucking chest wounds closed, plasma and morphine administered if needed; a booster dose of tetanus toxoid, if readily available, is given when the patient is known to have had tetanus toxoid previously; otherwise tetanus antitoxin is given after a skin test if no history of sensitivity to horse serum is known; chemotherapy is started. Nothing is done here that will make the man nontransportable. Improper early treatment accounts for an appreciable part of the poor condition of the wounded as they arrive at the hospital. Common but grave errors are overmedication (morphine), failure to appreciate that wounded patients need sedatives (see below), too much or too little plasma, failure to recognize and close (by temporary means) a sucking pneumothorax (see below), failure to check serious hemorrhage (particularly when hemorrhage may be resumed after plasma administration), transporting of patients in a face-up position instead of face down, when they have pharyngeal wounds, and failure to protect the patient properly during transport. This failure of proper support ranges from poor splinting to inadequate blankets, especially underneath the patient in cold weather.

When the respiration has failed, only a few minutes are available for saving the patient's life. A clear airway is established. When no apparatus or equipment of any kind is available either of two methods can be used: (*a*) In the Thompson [2] Girdlestone method the patient is placed on his belly, head turned to one side, the tongue pulled out and the chin pulled up by an assistant, if available. The man who attempts the rescue stands astride the patient and lifts his hips about a foot and a half off the ground. The body is gently released, and pressure of the rescuer's hands is firmly exerted on the patient's back, lower part of the ribs, expelling the air. The process is repeated 15 times per minute. This method will soon exhaust the rescuer and is feasible chiefly when there are several men available to take turns at it. This method is less exhausting and is also effective if, as suggested by John H. Emerson, the rescuer kneels beside the patient and rolls him up over his thigh. The patient's right side is lifted.) [2a] (*b*) A modified Sylvester method can be used. It is not so exhausting to the rescuer as the foregoing method. The patient is placed on his back and his chin pulled up by an assistant so that it points to the sky. The rescuer kneels with one knee in the patient's crotch and his other knee outside the patient's thigh. The rescuer grasps the patient's elbows and pushes them above the patient's head. He then pulls the patient's arms down to the patient's side and exerts pressure on the lower chest and upper abdomen to expel the air from the lungs. The process is repeated 15 times per minute. When possible it is desirable to have the head of the body on a plane about 15 degrees lower than the feet.

Far better than either of these methods is the Kreiselman bellows resuscitator, if available. In installations where anesthesia apparatus is at hand, with close fitting face mask, carbon dioxide absorption, oxygen gas and a breathing bag for squeezing, artificial respiration can be carried out effectively. When skilled help and the equipment are available, an endotracheal tube will facilitate gas exchange by whatever method of artificial respiration is chosen.

The first phase of treatment of the severely wounded man is completed in the first place reached that is

2. Thompson, T. C.: Method of Artificial Respiration Especially Useful for Paralyzed Patient, J. A. M. A. **104**: 307-308 (Jan. 26) 1935.

2a. Gordon, A. S.; Fainer, D. C., and Ivy, A. C.: Artificial Respiration, J. A. M. A. **144**: 1447 and 1455 (Dec. 23) 1950.

equipped to provide it. Dressings applied are then left undisturbed until the patient reaches the hospital, where definitive surgical measures can be instituted. Safeguards in the form of general patient inspection must be provided along the evacuation route. These safeguards do not include removal of dressings and wound inspection unless real indications for this are present. For example, a patient with a compound fracture may be held up for better immobilization or for resuscitation. The wound need not be exposed unless hemorrhage requires it. Precise, legible records will obviate much needless wound inspection. When patients are evacuated by water, splints or bandages to be applied should permit swimming or at least floating, if possible. The jaws of a patient (this is especially important in those to be evacuated by air or by water) should not be wired or otherwise fixed so as to prevent his expelling vomitus.

Patients with tourniquets deserve high evacuation priority. The use of tourniquets constitutes a problem often too little understood. The prompt use of a tourniquet will frequently be of life-saving importance. It is useful chiefly in controlling hemorrhage when great vessels of the extremities are injured. Usually this is in the presence of a compound fracture or amputation. Since tourniquets introduce hazards of ischemia and serious nerve damage, their use is to be as infrequent as possible and for as short a time as possible. When a tourniquet must be used it is applied as low as possible on a limb. It is not loosened or removed until a transfusion of whole blood is already running into a vein. Cooling of the extremity distal to the tourniquet is wise. When it is known that a patient has experienced little blood loss, when his condition is excellent, with normal blood pressure, and when it appears probable that the limb can be saved the above injunction not to loosen the tourniquet may be ignored with caution. In such circumstances loosening the tourniquet for a few moments at half-hourly intervals may save the extremity. It must be emphasized that such loosening is hazardous. When the patient has already experienced considerable blood loss, when his condition is deteriorating or when the blood pressure is falling, the tourniquet should not be loosened until a transfusion is in progress, an abundance of blood is in reserve and the falling blood pressure has been checked. Release of a tourniquet in a patient in poor condition or who has already lost much blood can precipitate profound shock and death.[3] It is better to lose a limb than to lose a life. When a limb is hopelessly mangled, a tourniquet is applied just below the site of election for amputation. When amputation is performed, the tourniquet is not removed until the extremity has been severed.

Removal from the ambulance and complete examination of all patients at frequent intervals is not necessary. It will seriously slow down evacuation of the severely wounded to the hospital.

When many wounded persons must be dealt with, as in great disasters, the establishment of a shock ward or tent is important. The continuous service of one physician in charge is desirable. He establishes local policy and sees to it that it is carried out by his assistants. He and the surgeons are in constant collaboration to decide extent of therapy and priority of operation. General care in the preoperative wards is described in the following section.

SPECIFIC PREOPERATIVE PROCEDURES

Specific procedures at the installation where initial surgery will be undertaken are listed:

1. Remove all clothing of the patient at once on admission.

2. Use the head-down position (foot of litter elevated about 12 inches, 30 cm.) for all patients when the systolic blood pressure is falling or is below 85 mm. of mercury. Exceptions: pulmonary edema, or if the position causes obvious difficulty (respiratory distress or cyanosis).

3. Make a complete physical examination and give any immediate wound care indicated.

4. Treat pain with morphine (1/6 grain, or 10 mg.) given intravenously, if the pain is severe. Do not give morphine when severe head wounds are present unless the pain is severe. Do not give the drug if the respiration is depressed or inadequate as the result of thoracic wounds. Do not assume that all of the seriously wounded need morphine. As many as three quarters of severely wounded soldiers do not. Treat anxiety and fear with pentobarbital sodium or amobarbital (amytal®) sodium, 1 to 2 grains (60 to 120 mg.) intravenously. These agents are valuable analgesics.[4] The most comfort can be given to the suffering by the use of a small dose of morphine plus a small dose of barbiturate intravenously. Remember that essentially the maximum pain relief is achieved with 1/6 grain of morphine, and that little if any increased effect can be obtained by doubling the dose. Doubling the dose greatly increases the toxic effects with no gain in pain relief.

5. Aspirate gastric contents. The only sure way to empty the stomach is to induce vomiting during placement of the largest gastric tube that will slip down easily. Washing of the stomach is usually not necessary and is contraindicated if the stomach or esophagus may have been penetrated by a missile.

6. Conserve by means of blankets the body heat of a wounded man who has been chilled. Heat is not added until blood transfusion is actually in progress.

7. Use oxygen therapy when cyanosis is present, when the pulse rate is unduly high, in thoracic wounds, when the respiration is depressed or when blood loss is great.

8. Vasoconstrictors and the so-called stimulants are of little use in treating the wounded. They are contraindicated in large dose.

9. Administration of any fluid by mouth is generally contraindicated once the hospital has been reached where definite surgical intervention will be performed. (Aspiration of vomitus is one of the most serious common accidents. This may be precipitated by anesthesia. The stomach may be full of food eaten many hours, even 18 hours, earlier if wounding occurred after a meal when the stomach was full. Oftentimes fluid will be expressed from the stomach by direct pressure of the surgeon working in the upper part of the abdomen. This flows into the pharynx and is quietly aspirated by the deeply anesthetized patient, without outward sign until hours later.)

10. Use dextrose and saline solutions only in the treatment of dehydration and sodium loss.

11. Start administration of a unit of plasma at once when a patient is admitted in critical condition, and take a blood sample for grouping and crossmatching. Many patients not in critical condition and without critical wounds should not be given plasma at all; treatment with only isotonic sodium chloride or dextrose solution will suffice. Plasma, because of limitations of supply and because of its well known hazards,

3. Wolff, L. H., and Adkins, T. F.: Tourniquet Problem in War Injuries, M. Bull. Mediterranean Theater **3**: 23, 1945.

4. Keats, A. S., and Beecher, H. K.: Pain Relief with Hypnotic Doses of Barbiturates and a Hypothesis, J. Pharmacol. & Exper. Therap. **100**: 1-13, 1950.

should be reserved for the critically injured patient. Occasionally the first transfusion (low titer, group 0, Rh-negative blood) is administered without prior grouping and crossmatching, depending on how critical the patient's condition may be. Of course no life is to be jeopardized by failure to give blood simply because Rh-negative blood is not available. It is sometimes (rarely) necessary to force blood in under pressure (a dangerous practice, to be carried out only by physicians). Except in dire emergencies both grouping and crossmatching will be carried out and attention given to the Rh factor.

12. In the forward stations give plasma to the extent of maintaining the systolic blood pressure at about 85 mm. of mercury. (Higher elevation results in undue loss of hemoglobin from increased bleeding.) Plasma administration gives one more time to obtain whole blood. Plasma alone does not adequately prepare the man who has lost blood for surgical operation. In the hospital where definitive surgery is to be carried out, one unit of plasma to about three blood transfusions is desirable in preparing for and carrying seriously wounded patients through anesthesia and surgery. (Plasma constitutes specific early treatment for the burned patient, see below.)

13. Give whole blood to the man who has suffered blood loss, whether or not he is approaching shock. When the average seriously wounded man not in shock is received at the forward hospital within four or five hours of wounding, one or two transfusions preceding operation and the same quantity during surgery are usually sufficient.

14. Effect great economy in the use of blood by observing the principles of use stated at the outset. When patients fail to respond to the customary resuscitative measures and the blood pressure remains critically low, intra-arterial infusion in even small quantities, 100 to 200 cc., produces surprisingly good results. The radial artery is convenient for this purpose. It is not necessary to restore the blood pressure or blood volume to normal before surgical treatment is instituted. What is essential is that the systolic blood pressure should be as high as 80 to 85 mm. of mercury and rising, and that the skin be of good color and, if possible, warm. In nearly all instances resuscitative procedures (whole blood, high oxygen intake) need to be continued during operation in the badly wounded.

15. Do not take more than three hours to prepare even a badly wounded man in shock for surgical intervention. Further delay is usually inexcusable and indicates improper organization for care.

CARE OF MEN WITH SPECIFIC WOUNDS

1. *Maxillofacial Wounds.*—Inadequate initial care may be more hazardous than the maxillofacial wound itself. There is no hesitation in performing tracheotomy when obstruction of the airway is evident. It is to be remembered that a tracheotomy may require an attendant during evacuation of the patient to the hospital. Some reduction and fixation of maxillofacial bones may be necessary as temporary measures to make transportation feasible. Patients with these wounds are transported on their bellies.

2. *Eye Wounds.*—Eyeballs never need to be removed in the early emergency period. (Sympathetic ophthalmia is not a hazard for 10 days.) Men with penetrating wounds of the eye should have *both* eyes bandaged so that the eyes will not move. If possible, evacuate sitting, preferably (unless other wounds require lying down) to prevent the escape of vitreous. For injuries and foreign bodies in the eye instill, if absolutely necessary, 1 per cent solution of tetracaine (pontocaine®) hydrochloride for pain relief. Remember that local anesthetics in the eye retard healing.

3. *Ear Wounds.*—Do not instill ear drops for blast injury or other head wounds. Pack the ears lightly with cotton.

4. *Penetrating Head Wounds.*—Dressings, once applied, are not removed from penetrating head wounds until definitive surgery is undertaken.

5. *Thoracic Wounds.*—Disturbances of respiration and of the circulation are anticipated and watched for in patients with thoracic wounds. These lead to inadequate oxygen intake and inadequate carbon dioxide removal from the lungs as a result of inadequate respiration. They also lead to inadequate gas exchange in the tissues as a consequence of low cardiac output and reduced circulation. Urgent effort is bent toward the establishment of a good airway, the restoration and maintenance of the blood pressure at 85 mm. of mercury at least and the maintenance of a normal tidal volume and rate of respiration. Tight occlusion of open chest wounds by gauze and adhesive strapping is obtained as soon as possible.

Unless incapacitating pulmonary edema is present, these patients are best placed on their backs with the foot of the litter elevated about 12 inches. Even in patients with some pulmonary edema this head-down position is used when the systolic blood pressure is below 80 mm. of mercury. As the blood pressure rises above 80 mm. the patient's position is changed gradually from the head down to the semirecumbent position. Saline or dextrose solutions are avoided in treating hypotension. Whole blood (or plasma, normally diluted, not concentrated) is the agent of choice. Pulmonary edema patients and all patients with thoracic wounds are best maintained in a somewhat dehydrated state. All patients suffering from suspected blast injury of the lungs are to be transported on litters.

Aspiration by needle of air and blood from the chest is important. Hemothorax is not replaced by air. Tension pneumothorax may constitute a rapidly fatal condition if not diagnosed and relieved promptly. A catheter with flutter valve or water-seal valve is necessary when air continues to leak from the injured lung into the pleural space. Any blood or mucus obstructing the tracheobronchial tree is removed by catheter aspiration or by bronchoscopy. Block of the intercostal nerves with procaine hydrochloride relieves the chest wall pain associated with breathing or coughing. This pain relief will make it possible for the patient to assist in clearing his airway by coughing. Whenever possible a high oxygen atmosphere is provided for the patient with a chest wound by nasal catheter, tent or face mask. This last means provides the most oxygen but requires fairly skilled attendance and constant supervision.

The administration of whole blood as described elsewhere is exceedingly important. Sometimes autotransfusion of whole blood from the pleura is desirable. After a level of 80 to 85 mm. of mercury systolic pressure is attained, blood administration is continued only rapidly enough to maintain improvement in the patient's general condition. The service of a skilled anesthetist is of great importance in the surgical management of these cases.

6. *Abdominal Wounds.*—Rapid evacuation and resuscitation may be critically urgent in patients with abdominal wounds. Whole blood is of chief importance. Occasionally patients fail to respond to intravenously given blood. Interarterial infusion of whole blood (radial artery) offers some help. (See the discussion above concerning the treatment of patients who fail to respond to the usual resuscitative measures.) Emptying of the stomach is of particular importance in these patients. Bronchoscopy is imperative when aspiration of gastric contents has occurred. Examination of the urine and the rectal contents for blood will often give information as to the extent of the abdominal injury. Field block or block of the lower intercostal nerves will be of aid in reducing the depth of general anesthesia required for surgical treatment.

7. *Peripheral Vascular Injuries.*—With peripheral vascular wounds it is preferable to have the injured extremity in a somewhat dependent position, even though some edema may appear. Plaster casts are bivalved if ischemia is threatened. Impending ischemic gangrene requires that a patient be held at the hospital until improvement occurs or amputation is required. Repeated sympathetic block using 1 per cent procaine hydrochloride solution will prevent ischemic gangrene

in some cases. Sympathectomy may be desirable. Normal blood volume, normal blood pressure and normal hemoglobin are all important in the preservation of ischemic limbs.

8. *Trench Foot (Frost Bite).*[5]—The concern here is not with prevention but with the existing condition and its early management. Persons with this ailment should get off and stay off their feet. Shoes and socks are removed as soon as the patient gets under cover. Neither prolonged cooling nor hasty warming are undertaken. The patient warms his own extremities by exposure in a room or tent at 68 to 70 F. The toes are kept apart, to prevent maceration, with cotton. If the skin is broken or blisters are present, a booster dose of tetanus toxoid is given if the patient had been previously immunized. If not, tetanus antitoxin is used after questioning and testing as to sensitivity. Antibiotics are started as early as possible. Avoid sympathetic blocks or sympathectomy until the patient has passed the stage of inflammation. This usually lasts for four or five weeks. Heparin or bishydroxycoumarin (dicumarol®) is given, if the patient has no associated wounds, but not until he has entered the most forward hospital. Postpone amputation as long as possible.

9. *Gas Gangrene.*—Continuous lookout for anaerobic infections is maintained. Gas gangrene is to be looked for in patients who have lain on the field for considerable periods with wounds uncared for. Predisposing factors are great tissue distruction, delay in treatment, contamination with soil and arterial occlusion. This occlusion may be caused by trauma, thrombosis, embolus, ligatures, bandages, spasm or pressure. These patients will often be in impending or actual shock. Their condition is often characterized by a high pulse rate, wound pain, confusion, apathy, sometimes euphoria, septic decomposition of tissues, gas in tissues and great extravasation of fluid in some cases. Surgical excision of the affected tissue is a striking and inseparable part of resuscitation. It is important in these cases to prevent peripheral circulatory failure or to overcome it if present. Transfusion of whole blood is indicated. In the occasional case in which hemoconcentration may be present plasma is useful, but the emphasis must be given to whole blood. In these cases it is desirable to combat the gastric and abdominal distention by gastric intubation.

10. *Peripheral Nerve Injuries.*—There is usually little to be gained by any attempt to determine the extent of peripheral nerve injuries until shortly before initial surgical intervention is undertaken. Even then it will be particularly difficult when the patient has multiple wounds, is in shock, is confused or is otherwise uncooperative.

11. *Compound Fractures.*—It is to be emphasized that, of all wounds, compound fractures have been most often associated with severe shock,[5a] for the very sufficient reason that they are of all wounds associated with the greatest blood loss. Whole blood transfusion in large quantities is mandatory in support of these patients. Effective splinting and the informed application of tourniquets as well as speed of movement along the evacuation chain to the installation where initial operation can be accomplished are all of life-saving importance.

12. *Burns.*—The immediate treatment of the severely burned patient is administration of blood and sodium salts and water.[5b] The patient is encouraged to drink a solution containing one teaspoonful sodium chloride and ⅗ teaspoonful sodium bicarbonate per quart of drinking water. Hartmann's solution (lactated Ringer's) may be used intravenously with advantage. Plasma has great usefulness in treating the burned patient in the period of hemoconcentration (12 units may be used in 24 hours). Normally diluted plasma is given with equal quantities of normal saline solution, which may be given by mouth or intravenously. (See above statement concerning the better use of Moyer's or Hartmann's solution.) Whole blood is desirable in the treatment of these patients. It is useful as well in control of shock and is essential in treating infected burns. Morphine provides the definitive treatment for pain. It is important, however, to differentiate the restlessness arising from apprehension, other psychic cause or a reduced circulating blood volume or anoxia from that due to pain. Restlessness caused by pain requires morphine or morphine plus a small dose of a barbiturate. Restlessness arising from other causes is best treated with small doses of barbiturate (90 mg., or 1½ grains pentobarbital sodium by mouth) alone. It is also to be remembered that patients whose peripheral circulation is low or absent will not absorb drugs injected subcutaneously or intramuscularly. The intravenous route is preferred. (See below.) Careful observation of the airway and lungs for edema and obstruction in patients who may have inhaled hot gases or flame is essential. Tracheotomy may be necessary. Leave clothing alone until definite treatment is undertaken. Splinting of extremities with or without pressure dressings increases comfort. If pressure is used, watch for ischemia of extremities. General anesthesia of newly burned patients is to be avoided if possible. Use of thiopental (pentothal®) sodium is absolutely contraindicated when severe burns are present. When general anesthesia is essential, ether anesthesia induced by nitrous oxide is the choice.

MORPHINE AND OTHER NARCOTICS

The following observations are set down with a view to bringing the use of morphine and other narcotic agents better into line with the facts known about them. They are of such importance in the medical care of the wounded and yet so often abused that they will be considered in some detail. The principles stated for morphine apply to all of the commonly used narcotics.

Administration.—(*a*) Dosage: Nearly the maximum analgesic effect of morphine is produced by a smaller dose than generally supposed, morphine ⅙ grain.[6] Larger doses chiefly cause undesirable side effects. They impair the body's power to overcome adverse situations. Morphine is not to be administered in greater than ¼ grain (15 mg.) single dose. Use small doses in patients to be transported by air, ⅛ to ⅙ grain (8 to 10 mg.). Respiratory depression here is particularly undesirable. (Allay apprehension and fear of first flight with barbiturates, pentobarbital sodium, 1½ grains by mouth.)

(*b*) Route: Subcutaneous or intramuscular injection is employed when a gradual, prolonged effect is sought. This route is avoided when the peripheral circulation is reduced by cold or low blood pressure. (See discussion below of delayed morphine poisoning in the wounded.) A better choice in such cases is intravenous injection. This is the best route also when immediate pain relief is wanted or when delayed absorption might prove harmful, as in anticipated or developing shock. When injection is impossible (no syringe), morphine ¼ grain may be held under the tongue until it is dissolved.

Indications.—The principal use of morphine is in the treatment of severe pain. Use aspirin (acetylsalicylic acid) or codeine for mild pain. In the absence of respiratory depression, head or chest wounds do not contraindicate the use of small doses of morphine if these or associated wounds cause pain.

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5. Simeone, F. A.: Personal communication to the author.

5a. Beecher, H. K.; Simeone, F. A.; Burnett, C. H.; Shapiro, S. L.; Sullivan, E. R., and Mallory, T. B.: The Internal State of the Severely Wounded Man on Entry to the Most Forward Hospital, Surgery **22**: 672-711, 1947.

5b. Moyer, C. A.: Recent Advances in the Chemical Supportive Therapy of Thermal Injury, Texas State J. Med. **45**: 635 (Sept.) 1949.

6. Denton, J., and Beecher, H. K.: New Analgesics: II. A Clinical Appraisal of the Narcotic Power of Methadone and Its Isomers, J. A. M. A. **141**: 1146-1148 (Dec. 17) 1949.

Do not use morphine routinely in all wounded men. Three fourths of severely wounded soldiers do not have enough wound pain to need the drug. They often suffer from anxiety and fear. These unhappy mental states are best treated with barbiturates, pentobarbital sodium (1½ grain) or amobarbital sodium (2 grains) intravenously, intramuscularly or by mouth. Usually the suffering of the wounded man is due to a combination of wound pain and fear or apprehension. In such cases a small dose of morphine plus a small dose of a barbiturate will accomplish more than a large dose of either drug alone. Men in shock seldom complain of wound pain; they do complain bitterly of thirst. In men whose hydration has been normal this is caused by a low circulating blood volume. The use of morphine to treat the discomfort of thirst, acute though it be, is unwise. It is to be remembered that seriously wounded men are abnormally sensitive to morphine and to all other depressant drugs.

Contraindications.—The following contraindications to the use of morphine should be observed:

Morphine will not be used as a sedative in manic or hysterical states, for allaying fear or for promoting sleep (unless pain is present). Such use cannot be defended. For these conditions better agents are available (phenobarbital or pentobarbital sodium or paraldehyde).

Morphine will be avoided (except where pain is present) as a routine agent in the preanesthetic medication (for general anesthesia) of seriously wounded patients. Anesthesia is usually easy to induce in them, in any case.

Morphine will not be administered in the field to a patient who must walk back to the aid post. At the aid post it will not be given to the wounded man who must at once be evacuated to the rear as "walking wounded." Such a patient may become confused, lie down along the evacuation route and go to sleep.

Morphine is contraindicated in shock unless pain (rarely) is present. Men in shock suffer from thirst, hardly at all from other causes. (See description below of effects morphine has on the respiration, circulation and fluid balance.)

Morphine is widely recognized as dangerous in conditions of low metabolism, as in hypothyroidism.

Morphine is largely destroyed in the liver; therefore it should be used with great caution, if at all, in the presence of liver disease, as infectious jaundice. It is to be particularly avoided in cirrhosis.

Morphine will be used with great caution, if at all, when even minor degrees of anoxia might be dangerous, as in head wounds, in circulatory impairment, or when the respiration is already impaired, as by chest wounds, pneumothorax, hemothorax, pleural effusion or pulmonary edema.

Morphine is not to be used to treat the restlessness arising from fear, apprehension, a confused mental state, anoxia, anemia, low blood volume, low blood pressure, hemorrhage or shock.

Morphine Poisoning.—This is first characterized chiefly by slow respiration and pinpoint pupils. The outstanding effect of overdosage with morphine is respiratory depression with anoxia. This is followed by circulatory damage. Less severe poisoning than the above, even therapeutic doses, often complicate treatment of the patient: Morphine by causing anorexia, nausea and vomiting limits the intake of food and fluids by mouth and increases fluid loss in vomitus and sweat. (Its needless use in shock is to be condemned.) Severe constipation is produced.

Delayed Morphine Poisoning in Wounded Men: When the peripheral circulation is sluggish or inactive, as it may be in patients who are chilled or who have low blood pressure, subcutaneous injections of drugs are poorly absorbed. Subcutaneous or even intramuscular injection of morphine in such circumstances fails to relieve the pain of wounded men. Repeated injections, sometimes over a period of many hours, are not absorbed until finally, by shock therapy and warmth, the circulation is re-established in the skin and subcutaneous regions. All of the unabsorbed deposits of morphine are then taken up by the active circulation so rapidly that signs of morphine poisoning previously not present then appear, as shock is overcome.

Although the intravenous use of morphine is desirable and would eliminate the problem, such use is not ordinarily practicable under outside field conditions. In this case, intramuscular injection followed by massage is the choice. All morphine injections should be made low enough on an extremity so that a tourniquet can be placed proximal to them if poisoning develops. Care is to be exercised in recording dose used, time given and site of injection when dealing with large numbers of wounded men.

Treatment of Morphine Poisoning: Realization that morphine intoxication may have a rather abrupt onset many hours after the last morphine injection, in the circumstances discussed above, is a considerable help in recognizing the problem at hand. Correct diagnosis leads to prompt and effective treatment. A tourniquet, intermittently briefly loosened, is placed proximal to the site of the injection. Primarily, the treatment of morphine poisoning consists in the effective prevention of anoxia. This is best accomplished by oxygen administration with artificial respiration if necessary. (See the discussion above concerning artificial respiration in the field.) In the hospital it is easily carried out with the aid of a closed anesthesia apparatus by means of intermittent bag pressure, with carbon dioxide absorption or with the Kreiselman hand bellows apparatus. Atropine 1/60 grain (1 mg.) administered intravenously may be of value. Ephedrine ½ grain (30 mg.) intravenously given has some value as a central stimulant. It will help to support a falling blood pressure. Hypertonic dextrose solution given intravenously is a good diuretic and aids in excretion of morphine by the kidneys. Body heat should be conserved. If coma develops, a gastric tube should be inserted in order to eliminate the possibility of aspiration of gastric contents. Moreover, frequent change of the patient's position is of value in reducing the later appearance of pulmonary complications. The treatment is supportive while the morphine overdose is being destroyed in the body or excreted from it by natural means.

ANESTHESIA FOR WOUNDED MEN

Careful preparation of wounded men for surgical intervention can be nullified by the incorrect choice of anesthesia. In periods of disaster it can confidently be expected that shortage of skilled anesthetists will be the rule. However capable the anesthetists may be, it has

been shown by experience that the following practices will give the best results in the hands of the experienced man as well as the novice.

Preanesthetic Medication.—Two drugs, atropine and pentobarbital sodium, are of real importance in preanesthetic medication. (*a*) Atropine 1/100 grain, 0.6 mg., may be given by subcutaneous injection about one hour before anesthesia is to be induced. The same dose can be given intravenously shortly before anesthesia if time has not permitted earlier subcutaneous injection. (*b*) Pentobarbital sodium 1½ grains may be given by mouth one hour before surgery or intravenously if operation is urgent. The use of morphine or other narcotic in the preanesthetic medication is not necessary (unless pain is present) and is actually undesirable in wounded men.

Inhalation Anesthesia.—Nitrous oxide provides useful anesthesia for minor procedures (simple superficial débridement of wounds, painful changes of dressings), as a supplement to other forms of anesthesia and for induction of ether anesthesia. It is always used with at least 80 volumes per cent of oxygen. The induction of ether anesthesia with ether itself is particularly easy in the seriously wounded. Ether is the choice in the seriously wounded, particularly for major thoracic surgery (through the open pleura), abdominal surgery and in caring for compound fractures of the femur. It is the choice when patients are in shock, when shock is feared or whenever the circulatory system may be impaired and general anesthesia is required. Ether is so widely recognized as the most desirable agent for use in the seriously wounded that its merit is also evident for patients who are in less precarious condition. It has been used too little. Ether is highly inflammable and explosive. In hot climates keep ether cans on ice or in wet bags exposed to a breeze if no ice is available, just before use.

Ether anesthesia is generally best administered through an endotracheal tube. Size 32 French is satisfactory in most adult patients. Sizes larger than 34 French are not necessary. A soft wire (copper) introducer will greatly facilitate the insertion of an endotracheal tube. The stomach must be emptied before anesthesia is started. This is accomplished by insertion of a gastric tube, which is done in such a way that vomiting is induced. The stomach cannot be dependably emptied by any means short of vomiting. Food eaten many hours, even 18 hours, previously will still be retained in the stomach if wounding occurred before the stomach had emptied. Aspiration of vomitus is the commonest serious, often fatal, needless accident occurring in hospital installations. It is seldom excusable.

Local Anesthesia.—Local anesthesia is accomplished chiefly with procaine hydrochloride (tetracaine or cocaine for topical anesthesia) for neurosurgical, for some maxillofacial and for minor surgical procedures. In great disasters when many casualties are awaiting treatment, regional block procedures are of little value, chiefly because of the skill and time that they require and the frequent multiplicity of wounds. Chief exceptions here are paravertebral or intercostal blocks for controlling thoracic pain and sympathetic blocks when the circulation of an extremity is impaired.

Epinephrine in 1:200,000 dilution will greatly prolong (triple or quadruple) the action of local anesthetic agents. Use 0.5 cc. of a 1:1,000 solution of epinephrine to 100 cc. of 1 per cent procaine hydrochloride. However, epinephrine or other vasoconstrictor agent is not to be used with local anesthetic agents in surgery of the fingers, toes, ears, nose, penis or scrotum. Sloughs may be caused if this is done. Epinephrine is not to be added to local anesthetics if their action is to be supplemented with cyclopropane, chloroform or ethyl chloride.

Sensitive persons or patients who have received an overdose of a local anesthetic agent will often have convulsions. Specific treatment is afforded by soluble barbiturates, for example, pentobarbital sodium or thiopental sodium. Usually 2 to 4 grains (120 to 240 mg.) will be sufficient. The intravenous route of administration is used. Reasonable doses of procaine hydrochloride will not exceed either 200 cc. of 0.5 per cent, 100 cc. of 1.0 per cent or 40 cc. of 2.0 per cent solutions. These maximum total doses should not be administered in less than an hour to healthy adults in good condition. Local anesthetic agents will be used with great caution and in small dose in patients with liver disease. They will be avoided in patients having a history of sensitivity to them. Inquiry is always to be made concerning this.

Spinal Anesthesia.—Spinal anesthesia is never acceptable for men recently and seriously wounded. Such men tolerate it poorly.

Intravenously Given Thiopental (Pentothal®) Sodium.—The simplicity with which thiopental sodium anesthesia can be made available, particularly the compactness and the simplicity of the necessary equipment, the ease with which a smooth induction can be produced even by the inexperienced, the usual prompt awakening of the patient, the number of cases an inexperienced man can "get away with" even though his actual death rate may be unreasonably high in comparison with what it should be—all these factors have tended to outweigh the fact that thiopental is a powerful tool, that overdosage is not always easy to overcome, that use of the drug is incompatible with certain types of injury and that its fatal dose varies extremely widely from one patient to another.

Anyone employing thiopental sodium should, for safety, be aware that among other effects the drug (as do all barbiturates) impairs the sensitivity of the respiratory center to its normal chief stimulus, carbon dioxide. Under full thiopental anesthesia the body has to make use of a supplementary mechanism in order to keep respiration going. To maintain respiration a shift is made from the normal driving action of carbon dioxide on the respiratory center to the action of anoxia on the carotid mechanisms in the neck. Anoxia will stimulate respiration just as powerfully in the patient under deep thiopental anesthesia as under light anesthesia.[7] Thus the uninformed anesthetist may believe that respiratory stimulation means that the patient under thiopental anesthesia is awakening, whereas it may mean simply

7. Beecher, H. K., and Moyer, C. A.: Mechanism of Respiratory Failure under Barbiturate Anesthesia (Evipal, Pentothal), J. Clin. Investigation **20**: 549-566, 1941.

that the patient is not getting enough oxygen. A wrong interpretation here, leading to the further administration of thiopental sodium, has caused deaths. In other words, the true depth of thiopental anesthesia may be impossible to determine when there is a low oxygen content of the blood. For safety, certainly always in long operations, oxygen is administered with thiopental. As explained above, the respiratory center of the patient under full thiopental anesthesia loses its sensitivity to carbon dioxide. In fact, carbon dioxide becomes a depressant to respiration under this agent, and use of carbon dioxide as a respiratory "stimulant" is contraindicated during treatment of respiratory depression caused by thiopental or any other barbiturate. Acceptable practice with thiopental sodium involves the use of a 2.5 per cent solution, routine administration of oxygen to the patient in all except short (half-hour) operations, and frequent observation of pulse and blood pressure during anesthesia.

For preanesthetic medication before thiopental administration morphine may or may not be used. It is possible that preliminary morphine lessens the total quantity of thiopental needed. Whether or not too high a price may be paid for this advantage is not certain at this time. Of considerably more importance is the use of atropine. Its purpose is to minimize undesirable vagus reflexes. Atropine $\frac{1}{100}$ grain should be given subcutaneously about one hour preceding anesthesia, with half the dose ($\frac{1}{200}$ grain, 0.3 mg.) given intravenously just before anesthesia is started. During periods of disaster, in times of heavy admission of patients, there will not be time for the above and it will be satisfactory to give atropine $\frac{1}{100}$ grain intravenously 10 or 15 minutes preceding anesthesia. (In the presence of severe tachycardia use of atropine is avoided.) When severe laryngeal spasm occurs during thiopental anesthesia, administer atropine $\frac{1}{100}$ grain intravenously as soon as possible, even though the same dose was administered in preanesthetic medication shortly before.

Clinical Choice of Thiopental Sodium.—Thiopental is of proved great value in military medicine, that is certain. Equally certain it is that the choice of thiopental is contraindicated in the seriously wounded. Its use is unwise in the presence of certain injuries:

(*a*) When the patient is suffering from morphine overdosage.

(*b*) When shock is present, or when shock is anticipated. The following wounds are likely to be associated with shock: penetrating wounds of the chest or of the abdomen, compound fractures of the long bones and severe hemorrhage, even when it comes from otherwise trivial wounds. Thiopental sodium should never be used in the above conditions; ether is far safer, when general anesthesia must be used.

(*c*) When incision of a cervical abscess is to be undertaken. Deaths have occurred in such circumstances. Apparently, inflammation in the region of the carotid bodies and sinuses causes sensitization of reflexes arising there. These probably account for the notorious incidence of sudden death during such operations. Since thiopental sodium (and other barbiturates) is not especially effective in depressing these reflexes, its choice should be avoided in most cases of this kind. Rarely, as in some cases where compound fractures of the face may also be present, thiopental may be the reasonable choice for handling cervical abscesses. In such cases the following precautions should be observed: Use heavy atropinization in the preanesthetic medication. Do not begin surgical intervention in patients with irritable carotid sinus until at least 10 minutes after induction of thiopental anesthesia. Avoid pressure on the carotids. If feasible, block them with local anesthesia.

In another group of patients the use of thiopental sodium may at times be debatable but is usually unwise:

(*a*) In general, thiopental administration should be avoided when the operative position or procedure may interfere with the airway or make artificial respiration difficult, as in operations that must be carried out with the patient in the face-down position and in operations on maxillofacial injuries or other injuries involving the airway. If local anesthesia is inadequate (as usually will be the case here) use ether, preferably with endotracheal intubation.

(*b*) Although skilful (or lucky) men may often "get away" with the use of thiopental sodium as the chief anesthetic agent for intracranial surgery, its employment is usually not wise for the following reasons: Such operations are long. Thiopental anesthesia is best limited to short (half-hour) procedures. Intracranial operations are usually associated with great blood loss, often a liter or more by actual measurement. Extensive blood loss contraindicates use of thiopental. However, when the blood loss is not great, thiopental may be used as an adjunct to local anesthesia, as a sleep-producing agent rather than as an anesthetic. The drug sometimes unexpectedly causes respiratory depression and anoxia. Anoxia produces immediate swelling of the brain and may make an intracranial procedure difficult or impossible. In these cases local anesthesia or ether are the best available choices for wounded men.

(*c*) Experience shows that patients with severe burns tolerate thiopental anesthesia poorly.

The great field of trauma in which thiopental sodium has proved its value is in providing anesthesia, when relaxation is not needed, for short (half-hour) procedures in men in good condition, with slight wounds and little blood loss. Supplementation of thiopental with 50 per cent nitrous oxide anesthesia and 50 per cent oxygen is often desirable. (See comments above on the importance of emptying the stomach of the patient before thiopental anesthesia is induced.)

SUMMARY

The early care of the seriously wounded man has been summarized from the moment of wounding until the surgeon repairs the wound. This has been stated first in terms of general principles and then in terms of specific procedures.

PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) AND CORTISONE IN DISEASES OF THE SKIN

I. PEMPHIGUS VULGARIS AND OTHER BULLOUS DERMATOSES

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Reports are already available which indicate that pituitary adrenocorticotropic hormone (ACTH) and cortisone may be of value in the treatment of certain dermatological diseases. Among those which seem to be benefited are pemphigus vulgaris, exfoliative dermatitis, urticaria, allergic eczema, psoriasis, disseminated lupus erythematosus, periarteritis nodosa and possibly dermatomyositis and scleroderma.[1] On the other hand, these compounds appear to be ineffective or even detrimental in the treatment of herpes simplex, herpes zoster, varicella, moniliasis, sarcoidosis, acne and hirsutism.[1b]

Recently an increased supply of pituitary adrenocorticotropic hormone and cortisone has permitted their administration in larger dosage and for longer periods of time than was previously possible in most cases. The purpose of the present report is to summarize our experience with these hormones in the treatment of seven patients with pemphigus vulgaris or pemphigus vegetans, two with unclassified bullous eruptions and two with epidermolysis bullosa of the dystrophic type.

SELECTION OF PATIENTS AND LABORATORY STUDIES

The patients in this series were selected for study only after the clinical diagnosis had been agreed on by at least three experienced dermatologists. In all cases a preliminary observation period of at least one week was allowed, during which the pretreatment clinical and laboratory studies were completed. These included photographs of the cutaneous lesions, skin biopsies, routine blood and urine examinations, electrocardiograms, basal metabolic rate determinations, and serum sodium, potassium, glucose, albumin and globulin values. In patients treated with pituitary adrenocorticotropic hormone eosinophil counts were done immediately before the start of treatment and four hours later. Levels of 17-ketosteroid excretion were not determined.

Patients receiving pituitary adrenocorticotropic hormone were given the allotted daily amount intramuscularly in four divided doses. When cortisone was used the patients usually received a single daily dose intramuscularly. During the course of treatment, the various laboratory determinations were repeated. The patient's weight, blood pressure, fluid intake and urine output were measured daily. Additional photographs were obtained whenever a change in the condition of the skin warranted it. Patients showing any evidence of edema were placed on a low salt diet, not exceeding 2 Gm. of sodium chloride daily, during treatment. Mercurial diuretics and potassium chloride by mouth were given in a few instances.

In most cases bland local medicaments and baths were also used, but these were of a type which could not have influenced the course of the disease decisively. Sedation was usually employed. Most of the patients received penicillin parenterally, one chloramphenicol (chloromycetin®) and another aureomycin hydrochloride to control secondary cutaneous infections. Whole blood transfusions, liver extract and vitamin B_{12} were given when severe anemia was present. Shortly after the completion of therapy, the skin biopsies were repeated and the patient was again photographed. As far as possible each patient was observed twice weekly after discharge from the hospital.

REPORT OF CASES

CASE 1.—*Pemphigus Vulgaris.*—E. M., a man aged 48, of Jewish extraction, had had superficial erosions of the mouth and conjunctivas about one year prior to receiving pituitary adrenocorticotropic hormone therapy. Large bullous lesions and crusts then appeared on the trunk and extremities. He was admitted to Presbyterian Hospital on Dec. 3, 1948 and improved greatly with aureomycin therapy, being ambulatory but having persistent mucous membrane lesions when he was discharged three months later. He soon relapsed and was readmitted on July 13, 1949. This time he failed to respond to aureomycin hydrochloride, naphuride (suramin sodium), irradiation of the liver and spleen and supportive treatment. He had lost 50 pounds (22.7 Kg.) and was bedridden, febrile, anemic, emaciated and apparently moribund when pituitary adrenocorticotropic hormone was administered (875 mg. in 10 days). The patient almost immediately became stronger and more cheerful. New bullae ceased to appear, and the old erosions began to epithelize from the periphery. Improvement continued for 10 more weeks and then, following a dorsal slit for cicatricial phimosis, an explosive outbreak of new bullae occurred. Pituitary adrenocorticotropic hormone was not available, and combined therapy with desoxycorticosterone acetate and ascorbic acid was tried without benefit. Large doses of aureomycin hydrochloride also were ineffective. Deterioration continued, and after three months the patient was again moribund. Almost the entire skin surface was

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Dr. Cannon died on Nov. 27, 1950.

Research Endocrinologist, Merck & Company, Inc. (Dr. Colfer).
From the Department of Dermatology, Columbia-Presbyterian Medical Center.

Dr. J. M. Carlisle of Merck & Company, Inc., supplied the cortisone used in these studies. Dr. John R. Mote of the Armour Laboratories made available the pituitary adrenocorticotropic hormone. Dr. Charles Ragan of the Department of Medicine and Drs. Roberts B. Pappenfort, George Hambrick and Royal Jennings gave indispensable assistance.

1. (*a*) Bordley, J. E., and others: Preliminary Observations on Effect of Adrenocortico-Tropic Hormone (ACTH) in Allergic Diseases, Bull. Johns Hopkins Hosp. **85**: 396-398, 1949. (*b*) Thorn, G. W.; Forsham, P. H.; Frawley, T. F.; Hill, S. R., Jr.; Roche, M.; Staehelin, D., and Wilson, D. L.: Medical Progress: The Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242**: 783-793, 824-834 and 865-872, 1950. (*c*) Baehr, G., and Soffer, L. J.: Treatment of Disseminated Lupus Erythematosus with Cortisone and Adrenocorticotropin, Bull. New York Acad. Med. **26**: 229-234, 1950. Elkington, J. R., and others: Effects of ACTH in Patients with Collagen and Allied Diseases, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 429-436. Bordley, J. E.; Harvey, A. M.; Howard, J. E., and Newman, E. V.: Preliminary Report on Use of ACTH in the Hypersensitive State, ibid., pp. 469-478. Randolph, T. G., and Rollins, J. P.: Relief of Allergic Diseases by ACTH Therapy, ibid., pp. 479-490. Goldman, R., and others: The Effect of ACTH on One Case of Periarteritis Nodosa, ibid. pp. 437-446. Shick, R. M.; Baggenstoss, A. H., and Polley, H. F.: Effects of Cortisone and ACTH on Periarteritis and Cranial Arteritis: Preliminary Report, Proc. Staff Meet., Mayo Clin. **25**: 135, 1950. Oppel, T. W.; Coker, C., and Milhorat, A. T.: Effect of Pituitary Adrenocorticotropin (ACTH) in Dermatomyositis, Ann. Int. Med. **32**: 318-324, 1950. Ragan, C.: Effect of ACTH on Clinical Syndrome of Dermatomyositis, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 423-428. Bayles, T. B.; Stout, C. F.; Stillman, J. S., and Lever, W.: The Treatment of Scleroderma with Adrenocorticotropic Hormone: Preliminary Observations, ibid., pp. 447-458.

involved so that it was possible to withdraw blood only from the dorsa of the hands (fig. 1). At this point a second course of pituitary adrenocorticotropic hormone was administered (720 mg. in 10 days), and this time the improvement within 24 hours was dramatic. The temperature, which had been spiking as high as 102.4 F., dropped to normal; new bullae ceased to appear, and the old lesions began to shrink. The patient's morale soared, his appetite became voracious and he gained 20 pounds (9.1 Kg.) in two weeks. The remission

Fig. 1 (case 1).—Before the second course of pituitary adrenocorticotropic hormone the patient was bedridden, with numerous large erosions and new bullae appearing daily. The weight was 104 pounds (47.2 Kg.), the temperature 102 F., the hemoglobin 10.0 Gm. per 100 cc., the sodium 131 milliequivalents per liter, the serum proteins 5.7 Gm. and the serum albumin 3.4 Gm., per 100 cc.

was complicated by severe monilial infection of the hands. He was discharged on March 22, 1950, ambulatory, and was given a maintenance dose of 40 mg. of the hormone three times a week. New lesions continued to appear, however, and the dosage was increased to 80 mg. three times a week. This also was ineffective, and the patient was admitted for the third time on May 8. He received 1,362 mg. of pituitary adrenocorticotropic hormone in 19 days, followed by 1,750 mg. of cortisone acetate in 12 days. With this larger dosage there was slow improvement, but healing was never complete and the mouth remained eroded and painful. Except for mild edema of the legs, there were no complications from the hormone therapy. Pronounced gynecomastia was present (fig. 2), but the patient had noted this to some degree before his illness.

He was again discharged and given 300 mg. of cortisone acetate twice weekly in the outpatient clinic. New lesions have continued to appear, and the maintenance dose has been raised to 300 mg. three times a week. Areas of eroded, granulating skin remain, and daily dressings are still required. However, the patient's general health is good, his weight has risen steadily to 175 pounds (79.4 Kg.) from a low point of 99¼ (45 Kg.), and he is now looking for work. At this writing (Sept. 28, 1950) he has received a total of 4,135 mg. of pituitary adrenocorticotropic hormone and 11,650 mg. of cortisone acetate. It seems probable that larger and larger doses will be needed to maintain even a partial clinical remission.

Case 2.—*Pemphigus Vulgaris.*—P. S., a Jewish woman aged 58, noted inframammary blisters and erosions two months before admission. After three weeks lesions appeared more and more rapidly until most of the trunk was involved, as well as the face, scalp, extremities and mouth. Pituitary adrenocorticotropic hormone, 100 mg. a day, was given for three and one half days with an abrupt fall in temperature and striking improvement in the condition of the skin. The dose was then reduced to 60 mg., and in 2 days numerous new lesions appeared on the skin and in the mucous membrane of the mouth. Return to 100 mg. dosage failed to check the process, and treatment with the drug was stopped after the eighth day. The patient became weaker and the pulse imperceptible; she died 13 days after treatment was begun.

Autopsy showed, beside the skin lesions, arteriosclerosis of the coronary arteries with healed myocardial infarction, moderate fatty metamorphosis of the liver, lipid depletion of the adrenals, tubular degeneration of the kidneys and struma lymphomatosa (Hashimoto's struma).

Case 3.—*Pemphigus Vulgaris.*—M. G., a Jewish man aged 59, was admitted with weeping and crusted lesions thickly scattered over the entire cutaneous surface, confluent on the scalp and legs. The eruption had been present for 10 months. The mouth and conjunctivas were not involved (fig. 3 *A*). Pituitary adrenocorticotropic hormone (1,125 mg. in 15 days) was given. Bulla formation ceased, and there was slow improvement in the old lesions. During the second week of therapy, the patient "felt like a well man" and the cutaneous lesions healed more rapidly. Two weeks after cessation of treatment new bullae appeared, and within three weeks he had relapsed to his pretreatment level. A second course of the hormone in smaller dosage (680 mg. in 17 days) resulted in only slight improvement. A third course (760 mg. in nine days) met prompt and dramatic response (fig. 3 *B*), followed by immediate relapse. Cortisone acetate (2,750 mg. in 16 days) was then given in an effort to establish an effective maintenance dose, but the patient's condition continued to deteriorate. At this point treatment with the pituitary hormone (1,115 mg. in 10 days) caused no improvement. Finally, 3,600 mg. of cortisone acetate was given over a period of 18 days, and this resulted in a prompt clinical response. Three days after the end of this treatment small numbers of bullae again began to appear, and these continued until the day of discharge. The patient was transferred to another hospital where frequent maintenance doses of 200 mg. of cortisone acetate have been required. Although the patient remains in fair general condition, new cutaneous lesions occur almost daily.

Case 4.—*Pemphigus Vulgaris.*—L. G., a Jewish man aged 55, noted superficial erosions in the mouth eight weeks before admission. These were followed soon by bullae on the trunk, extremities and penis. By the end of the first week of hospitalization most of the body surface was studded with bullous erosions and crusts.

Fig. 2 (case 1).—Fifteen weeks after figure 1; note the pigmented scars of healed lesions, persistent erosions on shoulders and upper part of chest, and gynecomastia. The weight was 158 pounds (71.7 Kg.), the temperature 98.8 F., the hemoglobin 16 Gm. per 100 cc., the sodium 134.2 milliequivalents per liter, the serum proteins 7.3 Gm. and the serum albumin 4.4 Gm., per 100 cc.

Pituitary adrenocorticotropic hormone, 80 mg. a day, was given with immediate reduction in the number of new lesions but only slight improvement of those already present; there was little relief of oral lesions or of the patient's distress. On the tenth day of treatment he suddenly had abdominal pain diagnosed as mesenteric thrombosis, and the drug was

discontinued. The following day the left brachial artery became occluded. The condition of the skin prohibited abdominal exploration.

The patient had given a history of thromboangiitis obliterans. His prothrombin time was 12 seconds. Under treatment with bishydroxycoumarin (dicumarol®) and heparin this increased in two days to 51 seconds. Abdominal pain recurred with vomiting. The patient became stuporous and died 16 days after treatment was begun.

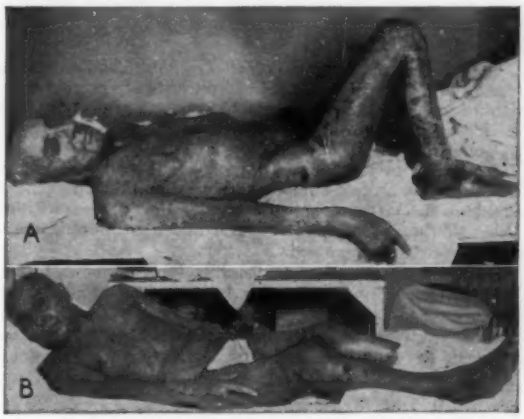

Fig. 3 (case 3).—*A*, before first course of pituitary adrenocorticotropic hormone. The patient was bedridden, with innumerable crusted lesions and with new bullae appearing daily. He was unable to stand to be weighed. The erythrocyte sedimentation rate (Westergren) was 88 mm. per hour, the sodium level 124.2 milliequivalents per liter. *B*, thirteen weeks after *A*, after the third course of the hormone. He was still confined to bed because of an abscess in the buttock and a decubitus ulcer on his heel. Small crusted lesions were present, and some new bullae appeared every week. The erythrocyte sedimentation rate was 20 mm. per hour. The sodium level was 139.3 milliequivalents per liter.

CASE 5.—*Pemphigus Vulgaris.*—J. M., an Italian woman aged 69, had soreness and sloughing of the tongue and oral mucosa five months before treatment. A bullous eruption then appeared on the trunk, extremities, face and neck. On admission she had numerous bullae and large eroded areas which were suppurating and crusted. She had lost about 40 pounds (18 Kg.) and was much debilitated (fig. 4 *A*). Pituitary adrenocorticotropic hormone (1,200 mg. in 20 days) was given with dramatic results. The skin improved remarkably within a week, and she felt much stronger. Six days after this course new bullae appeared and her condition became worse. After three weeks she was retreated with the pituitary hormone (287 mg. in six days) and cortisone acetate (3,075 mg. from the fifth through the twenty-fourth day). Again there was an immediate response (fig. 4 *B*), but after the cortisone dosage was reduced to 50 mg. a day new bullae appeared. Although the dose was increased to 100 mg. and then to 300 mg., her condition continued to deteriorate. This apparent "escape" from cortisone was associated with edema and gain in weight although the serum sodium, which had previously been abnormally low, did not rise above normal levels.

One intensive course of pituitary adrencorticotropic hormone (120 mg. daily for eight days) produced a short remission. A later course of 80 mg. daily caused no response. Cortisone acetate, 1,000 mg. in 48 hours, was twice followed by several days of improvement. She was then given 500 mg. of cortisone daily for 15 days. Even with this huge dosage a few bullae appeared almost daily. The patient has been under intermittent treatment for five months and has received in all 4,524 mg. of pituitary hormone and 6,050 mg. of cortisone acetate. Her mouth has so improved that she eats enormous amounts. She has gained 29 pounds (13.2 Kg.) but is still anemic and practically bedridden. She has erosions requiring constant dressing, but they are much less extensive. The prognosis seems ominous.

CASE 6.—*Pemphigus Vegetans.*—W. W., a man aged 42, of English-French extraction, had had recurrent bullous lesions on the penis, umbilicus and paronychial folds for four years. For two years he had had severe bullous, eroded and vegetating lesions in his groins, axillas, intergluteal fold, mouth and rectum and for some months scattered bullous lesions on the scalp, trunk and extremities.

After he received aureomycin therapy there developed extensive moniliasis which was especially severe in the groins. He had a low, irregular fever and lost 34 pounds (15.4 Kg.). He was bedridden because any movement caused unbearable pain in the raw intertriginous areas. He had slight anemia (hemoglobin 13.2 Gm. per 100 cc.) and eosinophilia (17 to 27 per cent). A biopsy was reported by Dr. G. F. Machacek as compatible with pemphigus. After several months in the Presbyterian Hospital the patient returned unimproved to his home in Greensboro, N. C. He was treated there by Dr. Marvin E. McRae.

The trip from New York taxed the patient's strength severely, and there was an immediate outbreak of large bullae all over his face. These gradually cleared, but his general condition slowly deteriorated until two weeks before his admission to Wesley Long Hospital, when he rapidly went downhill, lost hope and became greatly depressed. On his admission July 7, 1950 his back was covered with bullae, the Nikolsky sign was strongly positive, his mouth was so raw that eating was almost impossible, fluid was exuding freely from the axillas and groins, and his hands and feet had become soggy, pulpy masses. He weighed 115 pounds (52.6 Kg.). Cortisone acetate was given for 12 days at a level of 80 mg. a day and for five days at 100 mg. Within 24 hours his mouth was improved, and as soon as he could eat his appetite became ravenous. In four days all areas showed signs of healing. On the seventh day he was wallking, and on the seventeenth day he was practically free of lesions. During the succeeding 10 weeks to the time of writing he was given daily injections of 50 to 100 mg. of the drug. At the lower dose there was some recurrence of erythema and pruritus, but he is now in excellent condition on a dosage of 100 mg. a day. The skin is entirely clear except for hyperkeratosis of the palms and soles, probably

Fig. 4 (case 5).—*A*, before first course of pituitary adrenocorticotropic hormone. The back was covered with erosions from confluent bullae, and numerous new bullae appeared daily. The patient was bedridden and unable to stand for weighing. The hemoglobin level was 10.5 Gm. per 100 cc., the sodium level 131.4 milliequivalents per liter, the serum proteins 4.2 Gm. and the serum albumin 2.1 Gm., per 100 cc. *B*, seven weeks after *A* and 26 days after the first course; the patient is still emaciated and bedridden. New bullae are greatly diminished, and there is wide healing of eroded areas. The hemoglobin level after the patient received transfusions was 15.2 Gm. per 100 cc., the sodium determination was 125.7 milliequivalents per liter.

arsenical, and a subsiding paronychia probably due to moniliasis. He now weighs 150 pounds, (68 Kg.), a gain of 35 pounds (15.9 Kg.) since July, and is returning to work.

CASE 7.—*Pemphigus Vegetans.*—S. P., a Jewish man aged 44, had severe sores in the mouth and on the lips 12 weeks before treatment, soon followed by lesions in the larynx, nares, conjunctivas, urethra and rectum. In six weeks a few bullous lesions appeared on the trunk, and in eight weeks there was a

Fig. 5 (case 7).—*A*, one week before cortisone treatment, the mouth was a mass of ulcerations and there was severe involvement of the circumoral area and eyelids. Numerous large, isolated bullae were scattered over the body, with new lesions appearing daily. The temperature was 101 F., blood pressure 96/70 and the erythrocyte sedimentation rate (Westergren) 50 mm. per hour. The weight was 133 pounds (60.3 Kg.). The sodium level was 131.7 milliequivalents per liter, the serum proteins 6.5 Gm. and the serum albumin 4.0 Gm., per 100 cc. *B*, four weeks after *A* and 22 days after beginning cortisone treatment: The skin was practically clear, with erosions remaining in the mouth, but the patient was able to eat with comfort. The temperature was 98.6 F., the blood pressure 120/80 and the erythrocyte sedimentation rate 17 mm. per hour. The weight was 135½ pounds (61.5 Kg.). (The patient has since gained 22 pounds, [10 Kg.]).

profuse outbreak all over the body, with the temperature rising to 104 F., the erythrocyte sedimentation rate from 6 to 50 mm. per hour (Westergren) and the serum sodium level falling from 138.8 to 131.7 milliequivalents per liter. It was virtually impossible for him to eat, so he lost 25 pounds (11.3 Kg.) before his admission to Presbyterian Hospital and another 10 pounds (4.5 Kg.) thereafter. Vegetations developed on the denuded surfaces of the axillas and inner aspects of the thighs. His rapid deterioratioin appeared ominous (fig. 5 *A*).

He was given 300 mg. of cortisone acetate daily for 11 days. In 48 hours he felt stronger and his hoarseness diminished. Only isolated bullae developed after the first day and none after the seventh. In four days he was able to eat with ease, and his appetite became ravenous. In a week his temperature was normal. The old lesions on the skin showed signs of healing. The same dose (300 mg.) of cortisone was administered with intervals of one and then two days between injections. Improvement continued (fig. 5 *B*). By the fifth week of treatment there remained only brown stains and in the axillas minute papillary elevations; also, some ill-defined erosions have persisted in the mouth. When injections were omitted for six days there was a mucosal relapse; biweekly injections of 300 mg. seem necessary to maintain his remission.

CASE 8.—*Erythema Multiforme Pemphigoides.*—W. K., a man aged 62, of English extraction, had had blisters about a chronic ulcer on his leg for two and one half years before admission, and for six months he had had a profuse eruption of bullae up to 8 cm. in diameter on the trunk and limbs. At times itching had been severe. On admission his trunk and extremities were thickly sprinkled with crusted lesions and large fresh bullae surrounded by zones of erythema. There were bullae in the mouth and crusts in the nares. His general condition was good except for mild anemia (hemoglobin 12 Gm.). A biopsy was reported by Dr. G. F. Machacek as "compatible with pemphigus vulgaris." His blood protein was 7.6 Gm. per 100 cc. and his sodium 135 milliequivalents per liter; the erythrocyte sedimentation rate (Westergren) was 66 mm. per hour (fig. 6 *A*).

He was given 100 mg. of pituitary adrenocorticotropic hormone daily for one week and smaller doses for four succeeding days. There was immediate clinical improvement, and in two weeks only a few crusts remained (fig. 6 *B*). The ulcer which had been open for two and one half years healed in two months. For the succeeding six months without hormone therapy he had occasional bullae at the site of the ulcer but only one transient lesion elsewhere. This condition has been maintained two months longer on weekly doses of 50 mg. of cortisone acetate.

CASE 9.—*Erythema Multiforme Pemphigoides.*—E. G., a man aged 69, for nine months had an intensely pruritic eruption involving most of the cutaneous surface, especially profuse on his extremities with occasional outbreaks in his mouth. Bullae appeared in enormous crops of as many as 400 a day. There were also papules and large areas of scaling erythema. In spite of the profuse eruption and intense pruritus his general health remained excellent. The classification of this eruption was doubtful. Pemphigus or dermatitis herpetiformis could not be absolutely excluded.

He was given pituitary adrenocorticotropic hormone, at first 80 mg., then 40 mg. a day for 14 days. The response was immediate and dramatic. The pruritus stopped. On the morning that treatment was started he counted 200 new bullae, the following day only three and after that only a few occasional lesions. The old lesions healed rapidly, and the patient was discharged at the end of the course with only scattered crusts from old lesions.

Fig. 6 (case 8).—*A*, four days before treatment; the eruption began about the ulcer on the right ankle. Bullae were scattered all over body, with new lesions appearing daily. The temperature was 101 F., the erythrocyte sedimentation rate (Westergren) 60 mm. per hour. Blood serum proteins and sodium were within normal range. *B*, seventeen days after *A*, and six days after completing pituitary adrenocorticotropic hormone therapy. No new bullae appeared after the first day of treatment. Old lesions were practically healed, except for the ulcer. The erythrocyte sedimentation rate (Westergren) was 14 mm. per hour. The weight was not materially changed.

In five weeks the eruption and pruritus reappeared. He again rapidly improved with 40 mg. of pituitary adrenocorticotropic hormone a day for six days. He showed some edema and gained 8 pounds (3.6 Kg.). He became slightly euphoric,

but there were no alarming signs. We have been unable to observe him further.

CASE 10.—*Epidermolysis Bullosa (Congenital Dystrophic Type).*—M. L., an Italian boy aged 14 years, weight 74 pounds (33.6 Kg.), had a typical and extremely severe epidermolysis bullosa which had been present since birth. His teeth were rudimentary, his nails gone, his hands deformed by contractures and his atrophic skin in many areas firmly bound to the underlying structures. There developed daily huge flaccid bullae up to 8 cm. in diameter. His general health was good except for severe hypochromic anemia.

He was given cortisone acetate, 100 mg. a day for three weeks. As there was no effect, the dose was increased to 200 mg. for three days; then 200 mg. of pituitary adrenocorticotropic hormone was given on nine successive days. The patient felt somewhat stronger and more comfortable, but no objective change could be noted in the number of new bullae or the healing of ruptured lesions. He is continuing cortisone therapy under the supervision of his private physician.

CASE 11.—*Epidermolysis Bullosa (Congenital Dystrophic Type).*—M. G., an Italian man aged 28, had extremely severe epidermolysis bullosa with loss of all teeth and nails, deformity of the hands and contractures of his atrophic skin. He was given cortisone acetate, 300 mg. a day for six days and then 500 mg. a day for four days, after which the dosage was tapered off for one and one half weeks. He showed mild euphoria and great increase in appetite. Large new bullae appeared daliy during this therapy, and old lesions showed no acceleration in healing.

RESULTS

Of the seven patients with pemphigus, two are dead and five are living. The survivors are much improved, but in all cases the disease remains active and all are still receiving treatment. Two patients with "pemphigoid" or unclassified bullous eruptions responded rapidly to treatment, although both relapsed and required further therapy. The two patients with the congenital dystrophic form of epidermolysis bullosa showed no objective benefit from this therapy.

Both patients who died had fulminating pemphigus with fever, prostration and a rapid increase in the number of cutaneous lesions at the time treatment was started. Case 2 showed an immediate temporary response to pituitary adrenocorticotropic hormone but relapsed when the dosage was decreased and died in spite of the resumption of increased doses of the compound. Autopsy showed lipid depletion of the adrenals but no probable cause of death other than pemphigus. In case 4 there was virtually no response to the amounts of pituitary adrenocorticotropic hormone used. The immediate cause of death in this instance was believed to be mesenteric thrombosis, but this was not confirmed by autopsy. Mesenteric thrombosis is not a known complication of pemphigus, but thrombotic phenomena have been noted in a few patients receiving treatment with the hormone.[2] It may be significant that the patient gave a history of having thromboangiitis obliterans some years previously. It is possible that this death was due to treatment even though the suspected mesenteric thrombosis occurred before large amounts of the hormone had been given.

Subsequent experience has shown that enormous doses of glucocorticoid compounds may be necessary to control some cases of pemphigus. Thus, the possibility remains that the administration of pituitary adrenocorticotropic hormone in larger amounts might have been life saving in cases 2 and 4. However, it is possible that they may have had too much adrenal damage to respond to the hormone and that they might have responded to cortisone acetate. The fact that in case 4 there was a pronounced decrease in the number of circulating eosinophils after the administration of epinephrine argues against this possibility.

None of the five remaining patients with pemphigus can be considered cured. In cases 1, 3 and 7 some new lesions continue to develop and there are unhealed areas from old lesions which persist in spite of continued treatment. However, all patients were severely prostrated with rapidly developing lesions when treatment was begun. Cases 1, 3 and 6 were somewhat chronic in type, and in cases 3 and 6 the patients might have survived for months without hormone therapy. Cases 5 and 7 were acute, and the life expectancy seemed exceedingly short when treatment was started. In cases 1, 6 and 7 the patients are in fair general health and one (case 6) has resumed all normal activities. In cases 3 and 5, although the patients are still in the hospital they are much stronger than before treatment.

COMMENT

Pemphigus.—There are several reasons why data on the effectiveness of pituitary adrenocorticotropic hormone or cortisone in the treatment of pemphigus may be of considerable interest. For example, it has been demonstrated that patients dying with pemphigus sometimes show degenerative or necrotic lesions of the adrenal cortex.[3] Although these changes are by no means pathognomonic of this disease, they occur with sufficient frequency to suggest that adrenocortical substances might be of some value in its treatment. Indeed, a number of years ago Lever and Talbott [4] reported benefit to patients from the use of adrenocortical extract and dihydrotachysterol in pemphigus. These investigators also confirmed the fact that profound electrolyte changes may occur in the tissues of patients with pemphigus. They stressed particularly the disturbances in serum sodium and presented some evidence to show that a direct relation may exist between the severity of clinical manifestations and low serum sodium levels. If nothing else, the nature of these chemical alterations suggests the possibility that they might be inhibited, at least in part, by glucocorticoid compounds.

Treatment with pituitary adrenocorticotropic hormone or cortisone certainly reduces the burden of managing a patient with pemphigus. Three patients (cases 1, 6 and 7) are living at home and are able to care for themselves. Two patients (cases 3 and 5), though still requiring baths and dressings, are in general

2. Ragan, C.: Personal communication to the authors.

3. Goldzieher, J. W.: The Adrenal Glands in Pemphigus Vulgaris: Report of 6 Autopsies and Review of the Literature, Arch. Dermat. & Syph. **52**: 369-375 (Nov.-Dec.) 1945.

4. Lever, W. F., and Talbott, J. H.: Pemphigus: Further Report on Chemical Studies of Blood Serum and Treatment with Adrenocortical Extract Dihydrotachysterol or Vitamin D, New England J. Med. **231**: 44-51, 1944.

wards without special nurses. From the economic standpoint this saving in hospitalization, nursing and dressings more than balances the present high cost of these medicaments. Perhaps the most disturbing feature of this type of therapy has been the fact that in most instances it has been necessary to employ larger and larger doses of the hormones as time goes on to keep the disease under control. Although one may still hope that continuance of treatment will eventually cause a permanent cessation of the eruption, there is as yet no indication that this will occur.

No difference between the effect of the two hormones has been noted. In sufficient doses both resulted in abolition of fever, euphoria within 24 to 48 hours and a prompt diminution in vesiculation with cessation of new lesions in about a week. Our impression in all cases was that epithelization of old lesions was hastened after about seven to 10 days of treatment.

Except for the possible mesenteric thrombosis in case 4, none of the patients exhibited any serious side effects from the pituitary adrenocorticotropic hormone or cortisone therapy in spite of the large doses employed. Patient 3 had a swarthy skin which became intensely pigmented after prolonged treatment. Patient 5, also a brunet, showed some darkening of the skin, but hyperpigmentation was not noted in the other patients except in the healed lesions. Patient 10, and to a lesser degree patients 3 and 5, showed the swelling of the cheeks described as "moon facies." In cases 1, 5, 6 and 9 moniliasis developed. All had received aureomycin hydrochloride or chloramphenicol either before or during their hormone therapy. Moniliasis of a localized sort is not uncommon after the use of these antibiotics, but in these patients with bullous eruptions the involvement was extensive. At times it was difficult to determine how many of their lesions were due to the original disease and how many to a secondary monilial infection.

For the most part, the pronounced changes in the values of electrolytes and other chemical constituents of the blood, so frequently noted in other diseases treated with these hormones, were not observed in the pemphigus patients. In cases 1, 3, 5 and 7 there were low levels of serum sodium before treatment (131, 124, 128.8 and 131.7 milliequivalents per liter). The value rose promptly to normal (140.9 milliequivalents per liter) in case 3 and more slowly in cases 1 and 5. No patients showed evidence of sodium retention. In cases 1, 3 and 5, after prolonged treatment, there developed transitory edema but never to an alarming degree. All patients (except case 2) showed low systolic blood pressures (96 to 108 mm.) before treatment. These slowly rose to normal and in case 1 reached 142 mm., but no patient manifested distinct hypertension. Patients 1 and 5 had severe hypoproteinemia, and in case 1 this slowly reached a normal level under treatment. All patients who were treated for several weeks showed a decided gain in weight. In case 1 there was a rise from 99¼ to 175 pounds, a little above the predisease level. The man developed a pronounced gynecomastia of which there was no evidence on admission but which he stated had been present to a lesser extent before his illness.

As treatment has progressed, larger and larger doses have usually been required to prevent relapse. In cases 1, 3 and 5, when no response was obtained to a given initial dosage there was little response to continued daily dosage at that level. In case 6 the disease has been completely controlled by small maintenance doses given daily. In other cases, however, it has been our impression that large doses given every second, third or fourth day have been more effective than the same total amount of hormone given in divided daily doses.

"Pemphigoid" Eruptions.—There was some difference of opinion among the clinical observers regarding the diagnoses in cases 8 and 9. The majority of those who saw these patients agreed, however, that the condition did not represent true pemphigus. In case 8, although the bullae were large there was considerable erythema, severe pruritus and little impairment of general health. In case 9 there were mostly small bullae or vesicles which appeared in profuse crops with some grouping. There were large areas of erythematous scaling; here, too, pruritus was prominent and the patient was not profoundly ill. These may be examples of a benign form of pemphigus, the bullous type of dermatitis herpetiformis, or bullous eruptions of the erythema multiforme group. They responded to moderate doses of hormones even more rapidly and more decisively than the cases of typical pemphigus. After their first course of treatment the patients appeared quite well except for crusts from involuting lesions. Both relapsed, however, and still require treatment to control their eruptions.

Epidermolysis Bullosa.—Cases 10 and 11 were typical examples of the congenital dystrophic form of epidermolysis bullosa. Neither patient showed a favorable clinical response to treatment in spite of large doses.

SUMMARY

1. Seven patients with pemphigus vulgaris have been treated with pituitary adrenocorticotropic hormone (ACTH) and/or cortisone, with two deaths to date.

2. Five patients are greatly improved, both in their skin condition and in general health. The therapeutic effect has been far more impressive than any we have observed from other forms of treatment. Three of these five patients have never been completely free of lesions, and all have required treatment to prevent relapse. There is little evidence that these hormones have influenced the basic causative factor in this disease.

3. Practically complete remission of symptoms was obtained in 2 cases of "pemphigoid" eruptions, but these patients also relapsed and required retreatment.

4. Two cases of epidermolysis bullosa of the congenital dystrophic type were unaffected by these hormones.

MONILIAL INFECTIONS COMPLICATING THE THERAPEUTIC USE OF ANTIBIOTICS

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Toxic side effects of antibiotics are becoming increasingly familiar as experience with these valuable therapeutic agents accumulates. The complications occurring with administration of penicillin, aureomycin and chloramphenicol have been described in numerous medical reports. Experience at Watts Hospital and McPherson Hospital has led us to believe, however, that one group of untoward effects of these antibotics deserves further emphasis and further investigation of the causal factors involved.

It has been frequently observed that when mixtures of bacteria are exposed to various antibiotics, susceptible organisms are suppressed or removed, whereas nonsusceptible organisms may grow abundantly, even in the presence of high concentrations of the antibiotic agent. The sensitivity of various types of bacteria to different antibiotics has been the subject of many studies, but relatively little has been done in the way of similar studies on the fungi, particularly Candida (Monilia). There is scant information available regarding the effect of suppression of bacterial flora on coexisting fungi inhabiting various parts of the human body. Recently we have encountered a sizable number of cases of clinical moniliasis, in most of which the disease was apparently a direct sequel to antibiotic therapy.

The first group of patients regularly encountered were those with sore mouth, hairy tongue, perièche or the clinical picture of thrush, resulting from the local use of penicillin or aureomycin (as sprays, troches, soluble tablets or powders) in the oropharynx. These preparations have been widely prescribed to patients by physicians and druggists, and the reactions produced by their use have been so frequent as to cause many physicians to discontinue this form of therapy. In our series of patients, Candida has been obtained from the mouths of all. A similar experience was encountered in a smaller group of patients in whom persistent diarrhea developed after therapy with penicillin, aureomycin or chloramphenicol. In these patients, Candida (Monilia) albicans was found growing abundantly in the stools. It is recognized that C. albicans, as well as other nonpathogenic strains of Candida, is a common inhabitant of oral, respiratory and intestinal tracts, genitalia and skin of normal healthy persons. It is well known, however, that C. albicans is pathogenic for human beings under certain conditions and is frequently the cause of vulvovaginitis, dermatitis, bronchopulmonary disease and oral disease. Its role in the production of intestinal disease is perhaps less well established clinically, although cases of so-called intestinal thrush are a matter of medical record.

The frequency with which evidence of overgrowth of C. albicans and clinical infection by the organism has been encountered in our series suggests a causal relationship between the use of antibiotics and the appearance of the monilial complications. Harris[1] has reported a similar experience and has succeeded in culturing C. albicans from the vulva, vagina, perianal skin and mouth of patients with complications resulting from aureomycin and chloramphenicol therapy. He states that "there is a strong suggestion that Monilia (Candida) albicans, a normal inhabitant of the bowel, may overgrow and perhaps gather virulence following destruction of the intestinal bacterial flora by the action of aureomycin or chloramphenicol, then invading tissues the resistance of which may have been lowered by the effects of riboflavin or vitamin B complex deficiency." Our clinical studies support the data published by Harris.

CLINICAL OBSERVATIONS

In recent months, we have observed a series of 25 cases of moniliasis confirmed by culture. We believe that many similar cases have escaped recognition in the past because of failure to culture local lesions for fungi. These cases have fallen into three groups: (*a*) infection of the oropharynx and esophagus; (*b*) infection of the intestinal tract with diarrhea, and (*c*) pulmonary moniliasis.

Twenty patients with infections of the oropharynx were encountered. The oral complications following penicillin, aureomycin and chloramphenicol therapy have presented a constant clinical picture, regardless of the method of administration. The history is that of a sore throat for which one of the antibiotics has been taken; the infection clears and is followed in 24 to 72 hours by a burning tongue, mouth and throat. The picture varies according to the stage in which the case is observed. The tongue is most frequently involved and at first is thickly coated, often with an overgrowth of the filiform papillae, giving the appearance of a brown or black hairy tongue. Later the coating or hairy covering comes off, and the tongue is left beefy red, dry and swollen, with the papillae standing out in relief. It is tender to palpation and to contact with acid juices and foods. The sense of taste is markedly altered. The buccal mucous membrane is at first covered with circumscribed or coalesced areas of whitish exudate, which can be wiped away easily. In 24 to 72 hours this milk-curd-like exudate comes off and the buccal mucous membrane is left dry, glazed and parched. This exudate has been seen less frequently on the tongue, soft palate, tonsils and posterior pharyngeal wall. There are often small petechial hemorrhages in the mucous membrane. The soft palate, uvula, aryepiglottic folds and piriform fossae in the early stage are acutely reddened and edematous, followed by a glazed, reddened appearance with mod-

From the Medical Service, Watts Hospital and McPherson Hospital.
Miss Mary C. Henderson, bacteriologist for Watts Hospital, gave technical assistance in the in vitro studies.

1. Harris, H. J.: Aureomycin and Chloramphenicol in Brucellosis, with Special Reference to Side Effects, J. A. M. A. 142: 161 (Jan. 21) 1950.

erate edema. In one severe case, the exudative lesions described in the oropharynx were found to extend the entire length of the esophagus, presenting a severe monilial esophagitis. Twenty representative cases of the oropharyngeal and esophageal complications are presented, four in the text and the remaining 16 in table 1.

REPORTS OF CASES

CASE 1.—N. H., a woman aged 70, was ill for one week prior to hospital admission. She complained of fever, chills, malaise and loss of appetite. Physical examination revealed no clues to the diagnosis, but blood and stool cultures performed on the day of admission were positive for Salmonella typhosa. Chloramphenicol therapy was begun, with an initial dose of 2.75 Gm., followed by 0.25 Gm. every two hours for five days. Administration of the drug was stopped at this time because of the development of severe thrush stomatitis and glossitis, with fiery red mucous membranes and tongue and irregular patches of "milk curd" exudate. C. albicans was cultured from the mouth and urine. The fungus infection responded within ten days to local application of 1 per cent methylrosaniline chloride (gentian violet) and alkaline mouth washes. Despite the short course of chloramphenicol therapy, complete recovery from typhoid occurred.

CASE 2.—H. B., a physician aged 59, was ill for six weeks previous to admission, with complaints of malaise, chilliness and paroxysms of nonproductive cough. Self-administered therapy included 4 Gm. of dihydrostreptomycin, 3,000,000 units of aqueous penicillin and 1.5 Gm. of aureomycin hydrochloride. This treatment was followed by the development of a fiery red, sore buccal mucosa and tongue, with superimposed white patches.

Studies revealed atelectasis of the upper lobe of the left lung due to bronchogenic carcinoma. Cultures taken from the tongue and sputum were positive for C. albicans. Thrush persisted to the time of death, three weeks later, despite local applications of 1 per cent methylrosaniline chloride (gentian violet), bacitracin lozenges and large doses of the B complex vitamins, administered parenterally and orally.

CASE 3.—H. L., aged 39, on April 6, 1950 was seen by a physician for sore throat. Aureomycin lozenges were prescribed every four hours. In 48 hours the patient's throat was greatly improved, but 24 hours later burning of the tongue and moderate pain on swallowing developed. Without obtaining further medical advice, he again used the lozenges and continued to use three to five a day for the next five days. Symptoms became severer.

Examination at McPherson Hospital on April 17 revealed a coalesced white exudate on the right buccal mucous membrane. The tongue, hard and soft palates, pharynx and piriform fossae and epiglottis were beefy red and moderately edematous. Aureomycin therapy was immediately discontinued. Culture on Sabouraud's medium revealed Candida as the predominating organism. The oral mucous membranes were painted with 1 : 200 solution of formaldehyde, and antihistaminic and vitamin therapy was prescribed. Within 24 hours the exudate had disappeared from the buccal area, and the redness of the mucous membrane had decreased in intensity. In six days the mouth and throat had returned to normal, except that the tongue was still somewhat reddened and devoid of normal coating.

CASE 4.—C. W., aged 30, was admitted to McPherson Hospital with a severe sore throat and dysphagia of four weeks' duration. Two weeks prior to the onset of these symptoms, he had been given aureomycin capsules and later aureomycin lozenges for a sore throat. On admission, dysphagia was so severe that he refused even liquids. The essential findings on examination were redness of the tongue and pharyngeal mucous membrane and moderate edema of the arytenoid muscles and piriform fossae. By esophagoscopy, edema of the cricopharyngeal region and a white, patchy exudate extending from this region to the cardia were seen. The remainder of the mucous membrane was beefy red, and the cardia was so edematous that it could not be completely examined. There was moderate retention in the esophagus. The clinical impression was esophageal moniliasis, and this was confirmed by culture. The esophagus was painted with a 1: 200 solution of formaldelyde; vitamin therapy was given, and within 10 days recovery was complete.

Three patients with diarrhea and unusually heavy growth of C. albicans in the stools were studied. The presenting complaint was usually that of a mild persistent diarrhea, which developed after the treatment with antibiotics of some infection usually not related to the gastrointestinal tract. The diarrhea was usually mild, with passage of three to six loose, watery or mushy stools daily, occasionally containing mucus and rarely containing blood. This symptom complex was noted in one patient after prolonged penicillin therapy, in one patient after aureomycin therapy for an infection of the respiratory tract and in one patient after both penicillin and aureomycin therapy. There were, in addition, three patients treated with aureomycin or chloramphenicol who had no diarrhea or other intestinal symptoms but in whom C. albicans grew abundantly as the predominating organism on stool culture. The presence of C. albicans in such heavy concentration was considered significant. In an investigation in 1939 of 314 stools from persons at Duke University Medical School, Durham, N. C., Schnoor [2] found C. albicans in 16.9 per cent but noted a significant number of colonies in each culture plate in only 1 per cent of his patients, an observation suggesting that in this geographic area heavy growth of C. albicans in routine stool culture is unusual.

Three representative cases with persistent diarrhea following antibiotic therapy are presented.

CASE 21.—A. M. H., a 39 year old white woman, had a long history of recurrent urinary tract infection beginning in 1929; with many other ailments and complaints. On March 15, 1950 an influenza-like infection developed, and the patient was given 300,000 units of penicillin parenterally for seven days by her physician. She failed to improve and consulted another physician, who advised her that she had "inflammation of her tubes and ovaries" and gave her a course of 300,000 units penicillin parenterally daily for 20 days. During this course generalized urticaria, persistent moderately severe diarrhea and general malaise developed. On April 19 the patient was admitted to a hospital for nausea, vomiting and diarrhea. During the 17 day period in the hospital she received aureomycin (10 capsules of 250 mg. each), which she tolerated poorly. She continued to have intermittent mild diarrhea, abdominal cramps, mucus and occasional small amounts of blood in her stools until five days before the present admission, when moderately severe renal colic developed on the right side; she was admitted to Watts Hospital on June 19, 1950.

Physical examination disclosed nothing essentially abnormal, except for evidence of chronic illness and generalized abdominal tenderness. Pelvic examination revealed tenderness and induration of the adnexa. Roentgen examination revealed normal chest, upper part of the gastrointestinal tract, small intestines and colon, with slight bilateral hydronephrosis and hydroureter and marked kinking of the left ureter in its proximal third. The results of proctoscopic examination were negative. Stool examination revealed rare cysts of Escherichia coli. Cultures were negative for pathogenic bacteria, such as Salmonella, but stool culture on Sabouraud's medium was positive for C. albicans. A diagnosis of intestinal moniliasis was made, and the patient was discharged from the hospital,

2. Schnoor, T. G.: The Occurrence of Monilia in Normal Stools, Am. J. Trop. Med. 19: 163 (March) 1939.

with instructions to use a bland diet, antispasmodics and multivitamin capsules orally and vitamin B complex parenterally. After six weeks of this therapy, her diarrhea had largely subsided, except for the occasional passage of a loose semisolid stool.

Case 22.—P. W., a 38 year old college professor, noted fever, aching, malaise, sore throat, substernal tightness and persistent cough on May 4, 1950. He was first seen on May 9, and sulfadiazine was administered in doses of 2 Gm. initially, followed by 1.0 Gm. every six hours for four days, without improvement. Beginning May 14 aureomycin hydrochloride, 500 mg. followed by 250 mg. every six hours, was given for a period of five days. Physical examination at no time during his illness revealed any abnormality other than marked hyperplasia of the pharyngeal lymphoid tissue and lingual tonsils. After this course his respiratory symptoms gradually improved, and the patient was not seen until June 26, when he reported that he had had a persistent mild diarrhea with three or four loose watery stools daily since his course of aureomycin therapy. Stool cultures were obtained and were positive for C. albicans. He was treated with oral multivitamins and a bland diet, and the diarrhea disappeared during a period of two weeks.

Case 23.—C. F., a 57 year old tobacco buyer with known hypertension and coronary disease of several years' duration, consulted a physician on Jan. 25, 1950, for an acute infection of the respiratory tract. He was given aureomycin hydrochloride, 250 mg. every six hours for four days, with improvement in respiratory symptoms in 24 hours. On January 30, he reported to the physician with severe redness and soreness of the tongue, a "slick feel" in the mouth and a "burnt throat." He consulted another physician and was given 300,000 units of penicillin intramuscularly, with nicotinamide and riboflavin by mouth. On February 14 a severe penicillin reaction developed with generalized urticaria which was treated with diphenhydramine (benadryl®) hydrochloride and parenteral injections of vitamin B complex. His mouth had improved, but he complained of gaseous distress and bloating, which was attributed to considerable nervous tension. His gastrointestinal symptoms continued intermittently until April 25, when he complained of nausea, "upset stomach," gaseous indigestion, anorexia, occasional vomiting and weight loss. His symptoms improved temporarily on the use of bland diet, oral multivitamin supplements, sedation and antispasmodics. In June he was hospitalized at another hospital for mild persistent diarrhea, with episodes of five to six watery stools daily and mild abdominal cramps. Roentgenograms disclosed normal upper part of the gastrointestinal tract, small intestines and colon. Results of stool examinations and cultures were not reported. The patient was given a bland diet, phenobarbital and belladonna, without benefit to his diarrhea. On July 6 he was seen again, still complaining of diarrhea. A stool culture was advised, and after some delay it was obtained on July 13 and was positive for C. albicans. No other pathogenic organisms were found. The patient received a high vitamin intake orally and subsequently improved but had a relapse when vitamin therapy was discontinued for two weeks. He continued to have episodes of mild diarrhea but appears to be improving slowly at the present time on oral vitamin therapy.

Table 1.—*Clinical Summary of 17 Cases of Oropharyngeal Moniliasis*

Case	Age	Previous Treatment	Clinical Picture
5	34	Penicillin lozenges	White exudate on buccal mucous membrane; small petechial hemorrhages on soft palate; tongue, posterior pharyngeal wall, epiglottis and piriform fossae dry, reddened and glazed
6	60	Penicillin lozenges	White exudate on buccal mucous membrane and one coalesced area on the hard palate; tongue beefy red and dry; pharynx not involved
7	35	Penicillin dust inhalation	Tongue, buccal, pharyngeal and laryngeal mucous membrane red and glazed, with moderate edema
8	38	Aureomycin lozenges	Marked acute edema of soft palate and uvula; acute redness of hypopharynx; soft palate and uvula so edematous that patient doubted ability to breathe
9	22	Penicillin parenterally; aureomycin orally	Dry, beefy red, glazed tongue, oral and pharyngeal mucous membrane
10	35	Penicillin lozenges	Brown hairy tongue with small petechial hemorrhages on soft palate; acute redness and edema of pharyngeal wall and epiglottis; tongue dry, glazed and smooth the following day
11	64	Aureomycin lozenges	Dry, glazed, beefy red tongue and pharynx, slight edema of the arytenoid muscles, and aryepiglottic folds, with hoarseness
12	8	Aureomycin and terramycin orally; penicillin parenterally	Several circumscribed areas of white exudate on buccal mucous membrane, tongue, tonsils and pharynx, with marked edema of tongue
13	70	Aureomycin lozenges	Began with white exudate on buccal mucous membrane and tongue; followed by black hairy tongue. Pharynx and piriform fossae dry, beefy red and glazed
14	44	Aureomycin lozenges	Smooth glossy tongue, with no pharyngeal or buccal involvement
15	1	Aureomycin orally; streptomycin and penicillin parenterally	White exudate circumscribed and coalesced on buccal mucous membrane and tongue
16	29	Aureomycin orally	Tender and burning tongue, marked dysphagia, burning in esophagus and stomach almost constantly, alteration in taste and weight loss of one month's duration, after two courses of aureomycin capsules; tongue parched in appearance. Buccal mucous membrane, pharyngeal and piriform fossae dry and beefy red
17	..	Chloramphenicol	Dry, beefy red tongue and pharyngeal mucous membrane
18	62	Penicillin and streptomycin parenterally	Tongue red, sore, dry and covered with patchy white exudate; buccal mucosa red and sloughing in places
19	61	Penicillin parenterally	Sore mouth and tongue; tongue acutely inflamed along the edges with heavy white membrane over central portion; oral mucous membrane inflamed
20	22	Penicillin parenterally; aureomycin orally	Sore tongue; tip of tongue red and inflamed with thick white hairy coating of the remainder; buccal mucosa reddened and slightly edematous

Two cases of bronchopulmonary moniliasis which appeared as complications of antibiotic therapy for acute and chronic pulmonary infections are reported. This form of monilial infection presents a more serious hazard than the complications previously discussed and poses a problem in choice of therapy for patients with respiratory tract infections in which C. albicans coexists with some acute or chronic bacterial infection.

The danger of development of bronchopulmonary or pulmonary moniliasis during therapy with antibiotics must certainly be given careful consideration before such treatment is undertaken.

CASE 24.—M. G. S., a 61 year old woman, was admitted to Watts Hospital on Feb. 10, 1950, with a history of having had pneumonia six weeks prior to admission, while on a trip

Fig. 1.—Tongue lesions in case 13.

to Mexico. She was flown home in a critical condition and was admitted to a hospital, where roentgen rays revealed bilateral lower lobe pneumonia. She was treated with massive doses of penicillin and aureomycin, with gradual improvement of her pneumonia. During treatment, however, severe, acute arthritis developed, and she was transferred to Watts Hospital for further study and treatment. On admission, examination revealed exophthalmos from previous thyrotoxicosis (operated on), signs of consolidation at the bases of both lungs and acute redness and swelling of multiple joints of the extremities, with limitation of motion. Chest roentgenograms revealed rather extensive mottling extending out from the lower portion of both hili into the lung bases. This pneumonitis failed to improve over a period of several days, and cultures of the sputum were found positive for C. albicans.

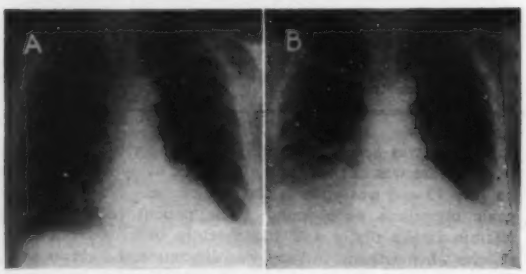

Fig. 2.—Chest roentgenograms in case 24. *A*, Feb. 11, 1950; *B*, May 8, 1950.

A rabbit inoculated with the organism died of extensive miliary involvement of the kidneys within three days. The patient was given a skin test with monilial vaccine, and a strongly positive reaction was obtained with 1: 100 dilution. Agglutinations for C. albicans with the patient's serum were positive in a dilution of 1: 160. On March 16 a bilateral pleural effusion developed, with fever and increased malaise. Several thoracenteses were performed, with removal of sterile straw-colored fluid. Treatment was begun with monilial vaccine in a dilution of 1: 10,000 and carried through dilutions to 1: 100 prior to institution of therapy with potassium iodide. The cautious trial of chloramphenicol and a course of dihydrostreptomycin were without clinical effect. The patient was discharged from the hospital after three months to continue treatment and convalescence at home. At last report, on June 6, she was continuing to improve, with gradual disappearance of pleural effusions.

CASE 25.—A boy aged 9 years was referred to McPherson Hospital for bronchoscopic examination because of a persistent cough of several months' duration. Recently he had been having an afternoon temperature of 100 to 101 F. and, on occasion, up to 104 F. At the age of 3 years he had had severe pneumonia complicating whooping cough, and since this time had had recurrent bouts of pneumonitis.

Ten days prior to admission, he had been given 300,000 units of penicillin daily intramuscularly with 250 mg. of aureomycin hydrochloride every six hours for five days. Results of examination were essentially negative. Bronchoscopy with the patient under general anesthesia revealed hyperemia of the bronchial mucosa in the lower lobe of each lung. A moderate amount of mucopurulent material was encountered, and cultures of this material for tubercle bacilli and fungi revealed

TABLE 2.—*In Vitro Studies of Four Strains of Candida**

	Tubes Containing Antibiotic, Sabouraud's Broth and C. Albicans from			C. Stellatoidae (Nonpathogen)
	Case 24	Case 22	Case 2	
Aureomycin †				
100	0.015	0.01	0.018	0.01
50	0.015	0.01	0.018	0.01
10	0.015	0.01	0.018	0.01
5	0.015	0.01	0.018	0.01
C ‡	0.015	0.01	0.018	0.01
Penicillin §				
5	0.025	0.012	0.028	0.01
2.5	0.025	0.012	0.028	0.01
0.5	0.025	0.012	0.028	0.01
0.25	0.025	0.012	0.028	0.01
C ‡	0.025	0.012	0.028	0.01
Chloramphenicol †				
1	0.022	0.011	0.028	0.01
0.5	0.022	0.011	0.028	0.01
0.25	0.022	0.011	0.028	0.01
0.1	0.022	0.011	0.028	0.01
C ‡	0.022	0.011	0.028	0.01

* Readings are in terms of milliliters of centrifuged sediment in Hopkins vaccine tubes after 48 hours. Additional controls consisting of antibiotic and broth only produced no sediment.
† Micrograms per cubic centimeter.
‡ A control consisting of organism and broth only.
§ Units per cubic centimeter.

an abundant growth of C. albicans. Agglutinations for C. albicans were positive in dilutions of 1: 10 to a stock strain and 1: 20 to the autogenous strain. Reaction to the skin test was strongly positive in 24 and 48 hours. Desensitization over a period of five months with autogenous monilial vaccine, beginning with dilutions of 1: 10,000, was carried out, and bronchoscopy was again performed. The tracheobronchial tree again showed inflammatory changes, but culture was negative for C. albicans. Clinically the child has gained weight and has had no fever but has continued to have a persistent productive cough.

IN VITRO OBSERVATIONS

Several possible explanations for the occurrence of monilial infections during or following antibiotic therapy were considered, including (*a*) the direct stimulation of growth of Candida by the antibiotic; (*b*) suppression of growth of bacteria and other organisms competing with Candida for nutritive substances in the environmental substrate; (*c*) change in the p_H of the environment through alteration in bacterial flora, and (*d*) change in host tissue resistance as the result of vitamin deficiency or some other physiopathological change, as suggested by Harris.[1]

There is scant published data on studies in vitro to determine whether penicillin, aureomycin or chloramphenicol have any growth-stimulating or growth-suppressing effects on different strains of Candida. Experiments designed to determine the sensitivity of four strains of Candida to various antibiotics were set up. A technic employing colony counts on Sabouraud's plates containing varying dilutions of antibiotics was first used but was abandoned as not sufficiently quantitative. The technic finally used consisted of growing the organisms in Sabouraud's broth containing suitable dilutions of antibiotic in calibrated Hopkin's vaccine tubes and centrifuging the tubes at high speed after 48 hours. The amount of sediment was read as a quantitative measure of the amount of monilial growth.

Four strains of Candida, including three different strains of C. albicans, and a nonpathogenic laboratory strain, C. stellatoidea, were examined for sensitivity to penicillin, aureomycin and chloramphenicol. One of the C. albicans strains, from case 24, had been proved pathogenic when inoculated into a rabbit, which died of extensive miliary involvement of the kidneys within three days. The final results of these experiments are recorded in table 2. A study of the results shows that there was no evidence that any of the three antibiotics either increased or suppressed the rate of growth of Candida in vitro.

The supposition that the antibiotics directly enhance monilial growth in vivo therefore would appear invalid and cannot serve as an explanation for the occurrence of clinical infections following their therapeutic use.

The effects of these three antibiotics in altering the bacterial flora of the intestinal, respiratory and genitourinary tracts and other parts of the body have been the subject of a large number of excellent reports. It was not considered necessary to repeat these studies on our patients, as it could be safely concluded from the results of other investigators that there was marked suppression of both gram-negative and gram-positive bacteria in varying degree as a result of antibiotic therapy employed parenterally or orally. The removal of these bacteria competing with coexisting Candida for nutritive substances in the same substrate, is, in our opinion, probably the most important single factor in the overgrowth of Candida following the use of antibiotics, but proof of this is difficult, and therefore we must remain speculative for the present time.

The effect of change in p_H on monilial growth, resulting from alteration of bacterial flora by the antibiotics, was not seriously considered as a cause of monilial overgrowth, largely on the basis of the observations of Karnaky.[3] He inoculated a pure culture of C. albicans in batches of media which varied in p_H from 3.9 to 10.82 and found that the organisms grew profusely and in the same amount on all of these. Clinical observations revealed that alteration of vaginal p_H had no effect on the growth of C. albicans in 41 cases of monilial vulvovaginitis. In view of such bacteriologic evidence that p_H has little effect on the rate of monilial growth in vitro, no effort was made to check the p_H of the oropharynx or intestinal contents of our patients with oral and intestinal moniliasis.

Evaluation of host resistance factors in our patients was not possible. Harris [1] and Leitner [4] have suggested that alteration in vitamin biosynthesis may be a factor in lowering host resistance and have had some success in the prevention and treatment of monilial infections complicating antibiotic therapy, by using parenteral injections of vitamin B complex.

SUMMARY AND CONCLUSIONS

Twenty-five cases of clinical moniliasis following the therapeutic use of penicillin, aureomycin and chloramphenicol are reported.

In vitro studies of four strains of Candida show that these antibiotics have no stimulating or suppressing effect on the rate of growth.

Suppression of bacterial flora coexisting with Candida and competing for nutrition in the same substrate is thought by us to be the most probable cause for monilial overgrowth and host infection.

Our clinical observations do not permit conclusions regarding the importance of changes in vitamin biosynthesis or other physiopathological reactions lowering host resistance to monilial invasion. Nevertheless, treatment with vitamin B complex seems to have some therapeutic value.

THERAPY IN PSYCHOMOTOR EPILEPSY

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Psychomotor seizures are epileptic manifestations occurring either alone or in combination with other types of seizures. The attacks are characterized by motor and/or psychic activity which is purposeful but irrelevant for the time and place, and the patient is amnesic afterward for the events that transpired during the seizure. There are no convulsive movements of either tonic or clonic nature during psychomotor seizures. Synonyms for the term psychomotor seizures are epileptic equivalents and epileptic fugue states.

Psychomotor seizures occur in late childhood or adult life; they have a frequency approximating that of major convulsions, and the individual attack lasts from one to five or more minutes. On the basis of these clinical facts the differentiation from petit mal epilepsy is not difficult. The activity of the patient during psychomotor seizures is quite distinct. The following examples drawn from the clinical material in this report illustrate the types of activity.

A school teacher attended a general assembly of students and faculty which was opened with the singing of the national anthem. During this the patient suffered an attack, remained seated in his chair, mumbled, shifted restlessly and rubbed the chair arms with his hands. Following this he had a total amnesia for the episode. Another patient was employed as a salesman in a men's furnishing store. Following a sale of men's suits he was asked to put the empty suit hangers in a

3. Karnaky, K. J.: Hydrogen Ion Concentration (p_H) of Monilia Albicans Infection and Treatment, South. M. J. 39: 731 (Sept.) 1946.

4. Leitner, Z. A.: Vitamin Deficiency and Antibiotics, Correspondence, Brit. M. J. 1: 491 (Feb. 25) 1950.

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carton. He had an attack during which he picked up the hangers and discarded them in the trash bin. On regaining consciousness he could only recall having been told to pick up the hangers but had no recollection of the intervening occurrences. A third patient while in the Epilepsy Clinic suddenly began saying "Where's the street car? Where's the street car?" in stereotyped fashion without any bearing on the productions of others. While repeating this, she walked along and rubbed, in a searching way, the wall surface with both hands. On regaining consciousness she denied any knowledge of what had transpired. Another patient, who acted as housekeeper for her family, took her brother's endorsed check to the grocery, placed it on the counter, turned, walked out without waiting for the cash or the groceries she had ordered and walked five blocks before regaining consciousness.

Many of these patients begin their seizures with upper gastrointestinal phenomena. Thus the patient with the first described seizure began with smacking of the lips and snorting noises followed by coughing and swallowing. Uncinate complaints are frequent. The seizure pattern is frequently the same in all seizures for a given patient; for example, a young Italian girl who had had seizures for 10 years always stooped forward, reached for the hem of her dress and rolled it up, meantime mumbling incoherently to herself. She was not known to have any other pattern in her psychomotor seizures. In other patients the manifestations vary. For example, a hospital janitor always had bizarre but varied activity in his seizures, sometimes emptying the mop bucket into a surgical sink, in other seizures immersing electric bulbs in water and, in still others, disrobing.

TABLE 1.—*Frequency of Psychomotor Seizures*

Frequency of Attacks	Number of Patients
1 per week or less	33
1 per week to 1 per month	36
1 per month to 1 in three months	10
Less than 1 in three months	8
Total	87

Psychomotor seizures constitute a distinct seizure entity. A similar manifestation frequently follows a grand mal or generalized seizure, but whether this can be considered the same phenomenon is open to some question since there are clinical and electroencephalographic differences. Gowers [1] carefully described types of psychomotor seizures but concluded that they were automatisms following slight convulsions. In recent years the concept of psychomotor seizures has been furthered by Lennox [2] and Penfield.[3] With the advent of diphenylhydantoin (dilantin®) sodium therapy it became important from the therapeutic point of view clearly to differentiate psychomotor seizures from petit mal attacks because phenylhydantoin was considered the drug of choice in therapy of grand mal and psychomotor seizures but disadvantageous in petit mal.

The development of hydantoin therapy for major convulsions [4] and oxazolidine therapy [5] for petit mal attacks left the impression that psychomotor seizures are not well controlled by medical regimens. This suggested that psychomotor seizures may be expressions of focal brain disease, since symptomatic epilepsy is usually more difficult to control by medicaments than is idiopathic epilepsy. That psychomotor seizures may be manifestations of focal epilepsy was directly evidenced by electroencephalographic studies. Jasper [6] had shown that the ear electrode often gave rise to spiking discharge in patients with psychomotor seizures. However, Gibbs and his colleagues [7] introduced the technic of reading electroencephalograms during sleep of the patient and demonstrated that the temporal lobe focus is evidenced by this technic in a high percentage of patients with psychomotor epilepsy. Together with Bailey they carried their studies to the point of successful ablation of the anterior portions of the temporal lobes.

Gibbs, Everett and Richards [9] pursued the problem of therapy along medical lines and introduced the use of phenacetylurea (alpha-phenylacetourea, phenurone) in the medical treatment of psychomotor epilepsy.

The Epilepsy Clinic at Jefferson Hospital has been functioning since 1944. When, in 1947, the inadequacy of diphenylhydantoin and phenobarbital was stressed and the possibilities of phenacetylurea therapy first broached, the cases of psychomotor epilepsy treated up to that time were reviewed and the results tabulated. These results are compared herein with those with the newer forms of therapy.

MATERIAL

The patients comprising this series were studied in the Epilepsy Clinic of the Jefferson Hospital. Since April 1944, when the clinic was opened, we have studied 87 patients who had psychomotor seizures either alone or in combination with other epileptic manifestations. The 87 patients showed a somewhat higher incidence of males than females, began their seizures for the most part before the age of 30, had psychomotor seizures once a month or oftener, and in over half of the cases had more than one type of seizure. The incidence of males to females was 51:36. In all but 11 patients the psychomotor seizures began before the age of 31 years. In only 18 patients did the psychomotor seizures occur at intervals of once in three months or longer, and in 34 patients these occurred at a frequency of once per week or oftener. The remaining 37 patients were afflicted at frequencies varying from one per week to one per month (table 1). Psychomotor seizures occurred without other epileptic manifestations in 32 patients, in combination with grand mal seizures in 48

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3. Penfield, W.: Classification of Epilepsies, Arch. Neurol. & Psychiat. **60**: 107 (Aug.) 1948.

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5. Lennox, W. G.: The Petit Mal Epilepsies: Their Treatment with Tridione, J. A. M. A. **129**: 1069 (Dec. 15) 1945. Davis, J. P., and Lennox, W. G.: The Effect of Trimethyloxazolidine Dione and of Dimethylethyloxazolidine Dione on Seizures and on the Blood, A. Research Nerv. & Ment. Dis., Proc. **26**: 423, 1947.

6. Jasper, H.: Electrical Activity of the Brain, Ann. Rev. Physiol. **3**: 377, 1941.

7. Gibbs, F. A.; Gibbs, E. L., and Fuster, B.: Anterior Temporal Localization of Sleep-Induced Seizure Discharges of Psychomotor Type, Tr. Am. Neurol. A. **72**: 180, 1947. Gibbs, E. L., and Gibbs, F. A.: Diagnostic and Localizing Value of Electroencephalographic Studies in Sleep, A. Research Nerv. & Ment. Dis., Proc. **26**: 366, 1947.

8. Deleted on proof.

9. Gibbs, F. A.; Everett, G. M., and Richards, R. K.: Phenurone in Epilepsy, Dis. Nerv. System **10**: 47, 1949.

patients and in combination with grand mal and petit mal attacks in 5 patients. Two patients had jacksonian seizures and psychomotor seizures (table 2). Not all these 87 patients were followed for sufficient periods of time to warrant assay of the efficacy of the medical preparations employed.

Therapeutic results are assayed for the prephenacetylurea period, for those patients treated with phenacetylurea and for the relatively small series of surgically treated patients.

RESULTS

Prephenacetylurea Medical Therapy.—Prior to the advent of phenacetylurea, 38 of the patients in this group had been studied in the Epilepsy Clinic. Only 25 of them, however, had been followed for a sufficient length of time to permit evaluation. These 25 patients had received the then-available anticonvulsant preparations to the point of therapeutic efficacy or, failing this, to the maximum dosage considered safe or to that dosage producing toxic results. The medicaments employed were diphenylhydantoin sodium, phenobarbital, mesantoin® (5-phenyl-5-ethyl-3-methylhydantoin) and trimethyloxazolidine dione. Employing these preparations, 17 patients were decidedly improved and 8 were unimproved (table 3).

Improvement in this and subsequent groups was determined by comparison with the longest seizure-free interval prior to institution of therapy. The pretherapy longest free intervals varied for the successfully treated group from one day to nine months. In order to be included in the improved group this interval had to be decidedly increased, and particularly so with the patients with infrequent seizures. The increase during therapy in longest free period varied from 4½ times the spontaneous free period (increase from two months to nine months) to 220 times (from seven days to four years.) One patient had had grand mal and psychomotor seizures for 17 years, the grand mal attacks occurring every three to four weeks and the psychomotor seizures at frequencies varying from 14 per day to one in three months, and with a usual expectancy of one per day. When she received 0.4 Gm. of diphenylhydantoin sodium per day she became free of seizures, both grand mal and psychomotor. After two years the dosage was reduced and after three years discontinued. She has remained seizure free for one year without medication. Another patient is now seizure free for five years and is in process of having her medication discontinued.

The mainstay of medication was diphenylhydantoin sodium in doses of 0.3 Gm. or more. Of the 17 improved patients, nine received this drug alone in dosages ranging from 0.3 to 0.5 Gm. per day. Four of the improved patients received diphenylhydantoin and phenobarbital, the dosage of the former varying from 0.3 to 0.5 Gm. a day and of the latter from 0.03 to 0.2 Gm. per day. Two patients were successfully treated with phenobarbital alone in dosages of 0.1 Gm. and 0.15 Gm. per day. One patient was successfully treated with diphenylhydantoin sodium 0.2 Gm. and mesantoin® 0.4 Gm. per day.

Of the 8 patients treated unsuccessfully, two were considered irregular in their therapy, including one patient with presenile dementia. A third refused to take more than 0.2 Gm. of diphenylhydantoin sodium per day and refused other medicaments. The remaining five received diphenylhydantoin in doses of 0.5 or 0.6 Gm. per day, together with phenobarbital (0.05 to 0.3 Gm. per day) and mesantoin® (0.1 to 0.4 Gm. per day). Trimethadione (tridione®) was given to four of these patients in doses up to 2.4 Gm. per day. In three patients it had no effect, and in one the seizures seemed to be increased.

Clinical factors which may have influenced the efficacy of therapy were investigated. These included presence or absence of other kinds of seizures, frequency of psychomotor attacks, age at onset of psychomotor seizures and age at which therapy was begun in the clinic.

Of the 25 patients who were followed for a sufficient length of time, six had psychomotor seizures only. Three of these were improved and three unimproved. Nineteen of the patients had both grand mal and psychomotor seizures. Fourteen of these patients were improved and 5 were unimproved. The presence of multiple types of seizures is, if anything, a favorable prognostic note.

TABLE 2.—*Psychomotor Epilepsy*

	Number of Patients
Psychomotor seizures only	32
Psychomotor and grand mal seizures	48
Psychomotor, grand mal and petit mal seizures	5
Psychomotor and jacksonian seizures	2
Total	87

TABLE 3.—*Results of Diphenylhydantoin Therapy*

	Controlled	Not Controlled
Diphenylhydantoin and other drugs (before 1947)	17 (⅔)	8 (⅓)
Diphenylhydantoin and other drugs (after 1947)	8 (⅓)	18 (⅔)
	25 (½)	26 (½)

The frequency of psychomotor seizures and results of therapy were not significantly related. Thirteen patients had seizures once a week or oftener; nine of these were improved and four unimproved. Four patients had psychomotor seizures at seven to 31 day intervals; three of these were improved and one unimproved. Eight patients had fewer seizures than one per month; five of these were improved and three unimproved. The age of onset of psychomotor seizures likewise had no apparent effect on the therapeutic results. Of the 25 patients, nine began their attacks before the age of 10, five of these being improved; nine began their attacks between ages of 10 and 20 years, six being improved; all four patients beginning their seizures between 20 and 30 years of age were improved, and of three patients having the onset after 30 years, two were improved and one unimproved. There are slight but certainly not significant variations with age of onset. The duration of seizures prior to institution of adequate therapy is important. Ten patients had seizures of less than 10 years' duration, and eight of these were improved. One of the two patients who was unimproved had seizures as part of

a presenile dementia; the other patient's faithfulness in taking medicaments was open to question. Patients with seizures of more than 10 years' duration were improved in nine instances and unimproved in six.

From these observations, one may conclude that the presence of other types of seizures is a good rather than bad prognostic note and that the age of onset of psychomotor seizures or their frequency does not materially alter the results of therapy. The durations of seizures affects therapeutic results in that those with the longer durations showed less tendency to be controlled.

After the advent of phenacetylurea therapy 49 patients with psychomotor epilepsy were studied. Only 27 of these patients have been followed sufficiently long to permit any evaluation. Patients to be treated with phenacetylurea almost invariably were first given a trial on standard preparations such as diphenylhydantoin sodium and phenobarbital. This was done in the hope that known nontoxic medicaments might prove successful therapeutic agents and also that some evaluation of the patient's reliability might be made before he was included in the experimental therapy series. The diphenylhydantoin and phenobarbital therapy, however, was not pushed with the same desperation that existed before the development of phenacetylurea.

TABLE 4.—*Results of Phenacetylurea Therapy*

	Controlled	Not Controlled
Phenacetylurea		
Without psychiatric signs and symptoms....	9	2
With psychiatric signs and symptoms.....	4	4
Total	13	6

During the preliminary trials with diphenylhydantoin and phenobarbital, eight of the 27 patients became seizure free or nearly so. Adding these additional improved patients to the prephenacetylurea group, we have 25 of 51 patients with psychomotor epilepsy controlled on phenylhydantoin and phenobarbital therapy (table 3).

Phenacetylurea Therapy.—Nineteen patients with psychomotor epilepsy have been treated with phenacetylurea (table 4). The dosages employed ranged from 1.5 to 3.5 Gm. per day. On this regimen, 13 patients became free of their psychomotor attacks, but four of the 13 patients manifested severe depressions and phenacetylurea therapy had to be stopped. This left nine of the 19 patients with seizures well controlled on phenacetylurea therapy. Five of the six patients whose attacks were not controlled also exhibited toxic responses to phenacetylurea therapy. Three patients in this group became depressed, one became restless and agitated and another had severe anorexia, vomiting and hematemesis.

A total of seven patients displayed mental depressions while undergoing phenacetylurea therapy. An additional patient became agitated and restless without manifest depression. Six of these eight patients had electroencephalographic evidence of temporal lobe foci. The remaining two patients, despite repeated electroencephalographic tracings during sleep, failed to evidence a temporal lobe origin for their paroxysmal disorders.

In one patient with temporal lobe origin for his seizure discharges there developed a fatal aplastic anemia.[10] This, in retrospect, was probably the result of other medicaments than phenacetylurea. No instance of hepatitis, kidney damage or insensitivity to pain developed in this series.

The age of onset, duration of seizures and presence of multiple seizure types bore no relationship to the therapeutic results obtained with phenacetylurea.

Surgical Therapy.—To date, five patients in this series have been treated surgically. The operations were performed by Dr. A. Earl Walker of Baltimore and Drs. J. Rudolph Jaeger and William Whiteley of Jefferson Hospital, Philadelphia. All five patients presented temporal lobe foci electroencephalographically. Summaries of the four cases followed for a sufficient period of time are presented.

CASE 1.—A man aged 37 had begun to have seizures at the age of 30, 18 months after a closed head injury. The attacks were generalized and psychomotor in type. Generalized seizures occurred at infrequent intervals and always while he was asleep. Psychomotor seizures occurred one to six times a day and consisted in loss of consciousness, grunting, aimless wandering and manual massaging of the thighs. The attacks lasted one to five minutes. Diphenylhydantoin and phenobarital therapy failed to relieve the attacks. Phenacetylurea therapy produced a severe depression. Electroencephalograms while he was awake were normal, but repeated tracings during sleep demonstrated a right temporal focal dysrhythmia. Surgical excision of the anterior tip of the right temporal lobe, with electrocorticographic control of the extent of excision, produced relief of seizures.

CASE 2.—A man aged 42 had generalized seizures about one per month and psychomotor seizures averaging one per week. These had been present for 21 years. The psychomotor seizures followed no constant pattern but were typical in character with irrelevant but purposeful productions and activities. Electroencephalographic studies while he was awake were normal, but during sleep bitemporal focal discharges occurred and these were most pronounced on the left. Diphenylhydantoin and phenobarbital as well as mesantoin® failed to control the psychomotor attacks but relieved the generalized seizures. Phenacetylurea therapy controlled the psychomotor attacks but produced severe depression with suicidal tendencies. Left temporal lobotomy by Dr. A. Earl Walker resulted in the disappearance of the psychomotor seizures. Generalized seizures were controlled by diphenylhydantoin and phenobarbital.

CASE 3.—A man aged 41 had had weekly psychomotor seizures for 11 years and occasional generalized attacks in this time. Neurological examinations were always negative, spinal fluid and air studies had been negative five years after the onset of illness. Resting electroencephalograms were always normal. Repeated sleep records were normal until the eleventh year of the illness, when right temporal spiking discharges were noted for the first time. Arteriography was normal. A temporal lobotomy by Dr. A. Earl Walker led to the diagnosis of brain tumor. This was found to be a glioblastoma multiforme. The temporal lobotomy resulted in a temporary improvement in the psychomotor attacks.

CASE 4.—A man aged 59, a physician, had had infrequent generalized attacks and approximately monthly psychomotor seizures over a 10 year period. Music often induced psychomotor seizures. Results of neurological examination were negative. Spinal fluid and air studies were normal. Elec-

10. Forster, F. M., and Frankel, K.: Fatal Aplastic Anemia During Anti-Convulsant Therapy: Report of a Case During Phenurone Therapy and Following Mesantoin Therapy, Dis. Nerv. System **10**: 108, 1949.

troencephalographic studies were normal while the man was in the resting state, asleep or listening to a wide variety of music in the resting or in the sleeping state. Injection of pentylenetetrazole (metrazol®) produced a psychomotor seizure, and during this attack there was focal, spiking discharge from the right temporal leads. Temporal lobotomy by Dr. A. Earl Walker relieved the psychomotor attacks for several months.

COMMENT

The results of therapy in this group of patients with psychomotor epilepsy is in many respects heartening. The efficacy of standard preparations, such as diphenylhydantoin and phenobarbital, is higher than might be expected. Before phenacetylurea was introduced, two thirds of the patients had their seizures controlled by these standard preparations. After phenacetylurea was introduced, and when the standard medicaments were not pushed to the same degree, approximately one third of the patients were controlled on the standard drugs. The obvious deduction is that one third to two thirds of the cases of psychomotor epilepsy can be controlled by use of standard medicaments, the variations in this range depending on the degree to which these standard regimens are pushed.

Phenacetylurea therapy succeeded in controlling seizures in two thirds of the patients who had not been controlled on standard medicaments. This reduces to a small fraction the number of cases of psychomotor epilepsy in which seizures cannot be controlled medically. However, the penalty of control with phenacetylurea is oftentimes high, and the severe depression which may develop as a result of phenacetylurea therapy necessitates withdrawal of the medicament and the loss of medical control. When we adjust our results for this factor we find that slightly less than half of the patients taking phenacetylurea enjoyed seizure control and absence of medically induced psychiatric deviations.

The electroencephalographic data on these patients comprises a separate study and will not be considered extensively here. However, eight patients manifested severe depressions or agitation while receiving phenacetylurea, and six of these patients had temporal lobe foci from which their psychomotor seizures originated. Gibbs [11] previously commented on this and considered that the appearance of the psychosis is related to the blocking of temporal lobe seizure discharges. Many patients with psychomotor epilepsy present normal electroencephalographic records in the waking state, but during their sleep the temporal lobe foci are readily discerned. In this group are two patients whose foci could not be demonstrated in repeated electroencephalographic tracings during sleep or in the waking state. Activation by pentylenetetrazole, however, readily demonstrated the temporal lobe origin for the convulsive disorder. One must maintain an eclectic approach to activation technics in electroencephalography.

The therapeutic approach to the patient with psychomotor epilepsy consists in the following determinations: (*a*) the presence or absence of any disease entity making surgical intervention mandatory; (*b*) if surgery is not mandatory, the future possibility of seizure control by elective surgery; (*c*) therapeutic trial with standard preparations; (*d*) therapeutic trial with experimental preparations, and (*e*) elective surgery, where possible, if all else fails.

Disease entities demanding surgical intervention are brain tumors and subdural hematomas. One patient in this group had a brain tumor. Those patients with temporal lobe foci from which their seizures emanate, but who presumably do not have brain tumors, may have either medical or surgical control. It is our custom to attempt medical control. If this can be accomplished by standard medicaments, or by the use of experimental preparations, then these patients are resurveyed at six month intervals. These surveys include air encephalography. This is to avoid the unexpected appearance of clinical signs of brain tumor. Merritt and Brenner [12] pointed out some years ago the unreliability of single air studies, when normal, for ruling out brain tumors. This is especially true of tumors of the temporal lobe.

The standard medicaments are preferable, if treatment with them is successful, because there are fewer and less severe side reactions and also because control with standard preparations requires fewer visits to the clinic. It is somewhat difficult to rehabilitate a patient physically by returning him to work and emotionally by convincing him that he can lead a relatively normal life while having him return for biweekly or monthly blood counts, urinalyses and evaluations of his mental status. However, when diphenylhydantoin and phenobarbital prove ineffective, use of the experimental preparations is, in general, indicated. Phenacetylurea should be tried but with adequate precautions. No patient with decided abnormalities of affect should be given treatment with phenacetylurea. This accounts for the discrepancy in this report between the number of patients not controlled by diphenylhydantoin and phenobarbital and the number treated with phenacetylurea. Perhaps more liberty could be taken under more ideal conditions than exist in the usual outpatient dispensary of a teaching hospital.

SUMMARY

The patient with psychomotor seizures can be treated with diphenylhydantoin (dilantin®) sodium and/or phenobarbital, with phenacetylurea (phenurone®) and possibly surgically. The use of diphenylhydantoin and/or phenobarbital has the advantages of simplicity and low toxicity. Establishment of control takes longer. Phenacetylurea is more specific against psychomotor seizures, and if the drug is efficacious the results are seen in a short time. Like all of the recently tried anticonvulsants, phenacetylurea presents the dangers of hematologic and hepatic damage and, in addition, has a failing of its own—the development of psychiatric depressions. Surgical therapy is available to those patients wth distinct electroencephalographic foci, demonstrated on repeated testing, in whom medical therapy has failed.

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SUBCLINICAL HISTOPLASMOSIS

GASTROINTESTINAL HISTOPLASMOSIS OF CHILDREN

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Studies during the past decade by Palmer and his associates of the United States Public Health Service [1] and by Christie and his associates at Vanderbilt University [2] have suggested that many children with pulmonary calcifications and negative tuberculin and positive histoplasmin sensitivity reactions have had a subclinical infection by Histoplasma capsulatum. Further studies by the same and other investigators have established histoplasmosis as a common benign disease of childhood of worldwide distribution, most prevalent in the central United States bordering the confluence of the great midcontinental rivers.[3] It has further been postulated that approximately half of those reacting to histoplasmin and showing no pulmonary calcification have had the disease without demonstrable pulmonary involvement.[3g, j]

Gastrointestinal histoplasmosis as a part of the generalized fatal disease was almost uniformly present in the 71 cases reviewed by Parsons and Zarafonetis [4] and in 13 of the 21 cases in children collected by Iams and his associates.[5] The former authors specifically cited involvement of the appendix in one case. The gastrointestinal portal of entry for Histoplasma capsulatum has been demonstrated in experimental animals by Allen.[6]

This study, inspired by the finding of organisms morphologically identical with H. capsulatum in the appendix of a 5 year old child, is presented as evidence in support of the hypothesis of common benign histoplasmosis and as a further indication that the disease is an actual clinical entity that in the past has been largely overlooked.

METHODS AND MATERIALS

The difficulties of morphological identification were manifest, and it is evident from this study that organisms were not recognized because observers had been trained to accept these bodies in phagocytic cells as debris. In 1885 Flemming [7] described in detail the "tingible Körpern," and in 1921 Latta [8] identified these stainable bodies in rabbit lymphoid tissue as degenerative lymphocytic nuclei. With these difficulties in mind, the tissues examined were scrutinized with great care after they had been stained with hematoxylin and eosin, Giemsa, Gram-Weigert, and Rawson's modification [9] of the Ziehl-Neelsen stain. The last-named stain was found to be of particular value in distinguishing nuclear debris. The material studied consisted of appendixes filed as surgical specimens diagnosed as chronic appendicitis, lymphoid hyperplasia of the appendix, and normal appendix in children 16 years of age and under, as these occurred in the files for the past 10 years, and of the several appendixes removed from children during the study. Criteria accepted for identification were finding of groups of

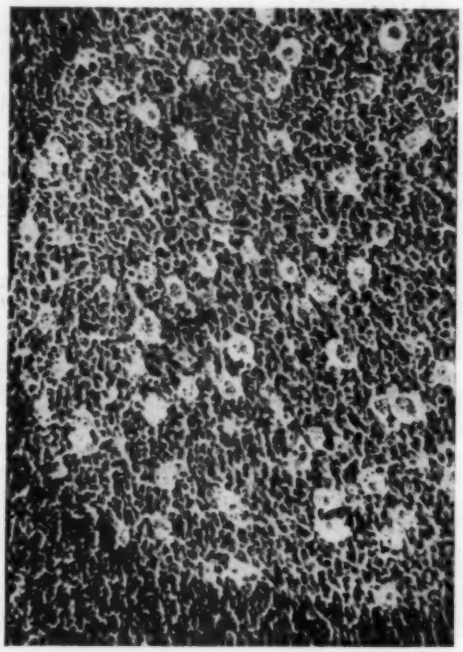

Fig. 1.—Appendix: low power view of an enlarged lymphoid follicle, showing the "starry sky" pattern of reactive hyperplasia and numerous yeast-laden macrophages.

apparently encapsulated spherical organisms, varying from 1 to 6 microns in diameter, showing recognizable acid fastness and lying within phagocytic cells. Cultural identification was established by fulfilment of the description of DeMonbreun.[10] The morphological diagnosis was recognized as presumptive, and positive diagnosis by culture and identification of the organism was attempted on the current material available. For this purpose the mucosa and submucosal tissue of the appendixes received from surgery were ground in a sterile mortar and inoculated into enriched infusion broth containing 20 units of penicillin and 40 units of streptomycin per cubic centimeter as recommended by Miller and his co-workers [11] and Bullen.[12] Transfer to dextrose-tartaric acid agar was made as soon as growth appeared. Final isolation was completed on Sabouraud's medium.

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In addition, cultures were attempted in the yolk sac of chick embryos, and animal inoculations were made into the peritoneal cavities of white mice. The descriptions of histopathology in rodents by Emmons and Ashburn [13] were used as a reference in examination of the mouse tissue.

FINDINGS

Four hundred and thirty-six appendixes from the files were studied, comprising all the cases of chronic appendicitis, lymphoid hyperplasia of the appendix and normal appendixes submitted in a ten year period. Fifty-four of these were found to contain H. capsulatum. All the involved appendixes were the site of a marked follicular hyperplasia, and the enlarged follicles showed uniform sprinkling of large phagocytic mononuclear cells which contained the organism. The

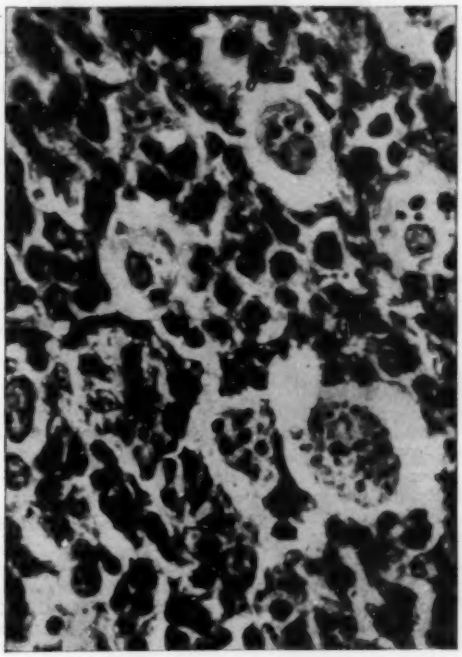

Fig. 2.—Appendix: high power view of yeast-laden macrophages.

organisms occurred from one to 20 in a cell; in a few cases all follicles were widely involved, but in many cases sphere-laden cells were scattered and in a few instances were in only one area of one of the sections taken through the appendix. No extracellular reaction to the intracellular parasites was evident beyond the uniform lymphoid hyperplasia.

One positive culture on artificial medium was obtained, as noted in the third case report. In one additional case a budding yeast was grown from material from the appendix inoculated into a chick embryo yolk sac. On transfer to artificial medium there was reluctant growth of a yeast at 37 C. and of a fine sterile mycelium at 30 C. In four cases encountered recently it has been possible to reproduce the disease in mice. The mice appeared ill and growth was retarded, but none died in a period of five weeks. When the mice were killed at five weeks, there was splenomegaly, hepatomegaly and hyperplasia of the intestinal lymphoid tissue. Sections of the lymphoid tissue and spleen showed a reactive hyperplasia identical with that encountered in the appendixes studied, and identical organisms were encountered. In addition, small epithelioid granulomas were produced in the spleens. This picture was not seen in six control animals inoculated with material from uninvolved appendixes. The yeast obtained from the yolk sac produced the same picure in the mice as material from involved appendixes.

The clinical histories of the involved cases were reviewed with the exception of three that were incomplete or not available. All but four of these children showed some evidence of chronic illness. Thirty-six ran a low grade fever during their hospital stay that was noted in the record with concern. Thirty gave a history of recurrent abdominal pain and nausea for a period of from three years to three months prior to operation. Seventeen of the 23 with follow-up history showed recurrence of abdominal pain or fever or other evidence of chronic illness. In eight cases chest roentgenograms were reported as showing enlarged hilar nodes, hilar calcification or mild diffuse infiltration; all these patients were found to have negative tuberculin reactions. One of the group showed a marked leukocytosis prior to operation; the rest had counts ranging from 5,000 to 9,000 white blood cells per cubic millimeter with 45 to 75 per cent segmented cells. Two of the children are known to have developed lymphoblastoma in the year following appendectomy, one dying six months postoperatively of a lymphoblastic lymphoblastoma, the second dying twelve months after

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13. Emmons, C. W., and Ashburn, L. L.: Histoplasmosis in Wild Rats: Occurrence and Histopathology, Pub. Health Rep. **63**: 1416-1422 (Oct. 29) 1948.

operation with a monocytic leukemia. The brother of one of the patients in the series died of lymphoblastic lymphosarcoma three months prior to his sister's appendectomy. Review of tissues at autopsy in the first of the cases revealed a lymphoblastic lymphoblastoma with accompanying infection by H. capsulatum evident in lymph node tissue. Review of blood smears from the second case failed to reveal organisms, and permission for autopsy was refused. Review of autopsy tissues from the brother of the patient in the series revealed a very anaplastic lymphoma and no recognizable parasites. The findings in recent cases are best presented as brief case reports.

REPORT OF CASES

CASE 1.—A 5 year old white girl was admitted with complaints of abdominal pain and vomiting of 12 hours' duration. The patient had previously been treated for pinworms, for persistent hoarseness and for recurrence of bedwetting at 2 years of age. Physical examination revealed well localized, right lower abdominal tenderness, and an appendectomy was performed. At operation the appendix appeared injected, and there were numerous swollen mesenteric lymph nodes. Pathological examination of the appendix showed an intact wall, moderate hyperplasia of lymphoid follicles and numerous yeast laden macrophages in the lymphoid follicles (figs. 1, 2 and 3). Cultures made at the time of the operation were negative at seven days and were discarded. After the operation the patient ran a febrile course with temperature elevations (99.2 to 100 F.) on each of seven postoperative days, without apparent cause and in spite of penicillin therapy. The course otherwise was not remarkable.

Fig. 3.—Appendix: oil immersion view of macrophages containing yeast organisms.

CASE 2.—A 5 month old white girl was admitted with shrill cry, apparent abdominal pain, vomiting and bloody stool of 12 hours' duration. There was a history of recurrent episodes diagnosed as acute abdominal pain for two months prior to admission. The baby had been a feeding problem with frequent vomiting during this period. A diagnosis of intussusception was made, and at operation the terminal ileum was intussuscepted into the cecum. This was reduced and the partially gangrenous appendix removed. Pathological examination of the appendix showed an area of acute gangrenous inflammation and several areas of lymphoid hyperplasia containing numerous yeast-laden macrophages. Cultures were grossly contaminated by a fungus (Fusarium). Postoperatively the course was uneventful except for temperature elevation daily, ascribed clinically to the operative procedure.

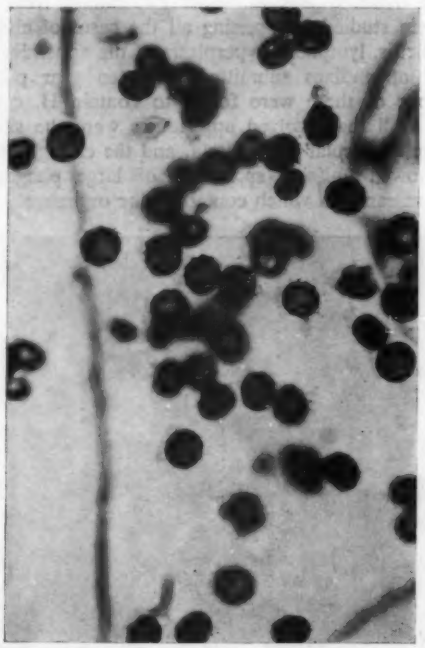

Fig. 4.—Oil immersion view of typical tuberculate chlamydospores from culture of appendix.

CASE 3.—A 7 year old white girl was admitted with complaints of abdominal pain and vomiting of two hours' duration. The pain began in the epigastrium and migrated to the right lower abdominal region. For one week prior to admission the patient had recurrent lower abdominal pain and cramping. Before that time the child had appeared completely normal. The white blood cell count on admission was 12,600 per cubic millimeter, with 70 per cent neutrophilic granulocytes, and the temperature was 98.8 F. At operation the appendix appeared injected and edematous, and the mesenteric lymph nodes were enlarged. The appendix and a portion of lymph node were removed. Pathological examination revealed a follicular hyperplasia of lymphoid tissue with yeast-laden histiocytes scattered through the follicles of the appendix and lymph node. Cultures from the appendix resulted in isolation of H. capsulatum showing typical cultural and morphological characteristics including the round tuberculate chlamydospores (fig. 4). After operation the patient showed daily temperature elevations for two days, at which time she left the hospital. Recovery was otherwise uneventful, and she appears in good health at this time.

COMMENT

The morphological study showed that in over 10 per cent of the appendixes removed from children 16 years of age and under, with diagnoses of chronic appendicitis, lymphoid hyperplasia or normal appendix, there was an associated reticuloendothelial cytomycosis by an organism identical with the yeast H. capsulatum.

In a recently encountered case morphologically identical to those of the large series, this organism was cultured from the lymphoid tissue of the appendix. In another case a yeast was grown in the chick embryo; this material and material from four additional cases reproduced the disease in mice. The age chart (fig. 5) for this series would indicate the greatest incidence of appendical infection at age 10 and a curve very similar to that encountered in initial positive tests in histoplasmin skin sensitivity studies.[14] The review of clinical findings in these cases revealed a rather startling and significant pattern of chronic illness. The incidence of associated lymphoblastoma was much greater than could be expected in an unselected group of children and was in line with the report and observations of Cawley and Curtis [15] citing the unexplained high incidence of histoplasmosis associated with lymphoblastoma. Certain epidemiological features were present in the study and deserve mention, although the group is small and observations are not conclusive. Cases appeared in sporadic groups without clear cut seasonal incidence. Several of the years covered had

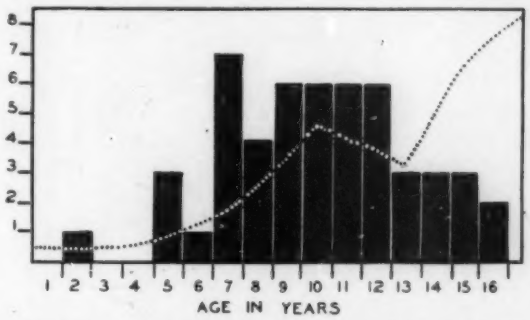

Fig. 5.—Age incidence of appendical histoplasmosis (51 cases). The figures at the left indicate the number of cases. The superimposed dotted line indicates the age incidence of appendectomy in the series reviewed (436 cases; 10 cases to each division).

a much higher incidence than others and no cases were encountered in two of the years covered by the study. Two patients came from the same home and were operated on within a three month period for almost identical symptoms. Symptoms appeared to be more severe in the younger patients and the only patients not manifesting evidence of chronic illness were in the older section of the group. It also appeared that a greater concentration of organisms was present in cases in the younger ages.

SUMMARY

Organisms morphologically identified as H. capsulatum were found in over 10 per cent of 436 appendixes surgically removed in children aged 16 years and under over a 10 year period. In an identical recent case H. capsulatum was cultured from the appendix. Review of the clinical histories of the patients so infected revealed that the great majority were suffering from an undiagnosed chronic disease. An unexplained high incidence of lymphoblastoma was found associated with the infection. This study is submitted as additional evidence in support of common benign histoplasmosis of children as a clinical entity.

ABSTRACT OF DISCUSSION

DR. ROBERT J. PARSONS, Oakland, Calif.: This is a very interesting paper. Unfortunately, this study matured so recently that it was impossible to do the histoplasmin skin sensitivity test on any of the patients that entered the series. The histological picture is very different from that of the fatal disease. It is interesting to hear of another case of lymphoblastoma in which histoplasmosis has occurred. In the 71 cases reviewed by Zarafonitis and me, there are numerous cases of lymphoid and myelogenous leukemia associated with histoplasmosis. The staining characteristics of these small bodies resemble very closely the staining characteristics of histoplasmosis. H. capsulatum is only poorly acid fast. Perhaps only 30 per cent of the organisms will stay red. It is mildly gram positive. It is difficult to find this organism, to deal with it after it is found and to be certain that it is H. capsulatum even when all the characteristics of the organism are known.

DR. HOBART REIMANN, Philadelphia: The combination of circumstances described seems to be common in histoplasmosis. We had a patient in whom sarcoidosis was diagnosed for seven years (*Pennsylvania M. J.* **52**:367, 1949). Subsequently, at necropsy histoplasmosis was found. The question arose whether the patient had both diseases or whether histoplasmosis may in some instances cause sarcoidosis. Histoplasmosis, however, often seems to be superimposed on Hodgkin's disease, carcinoma, leukemia and other chronic conditions. In further search for cases of histoplasmosis, studies were made in other puzzling cases. Granules such as Lt. Raftery described were occasionally found, but we have not considered them to be Histoplasma morphologically. For diagnostic proof, skin tests, serologic tests and, most important, cultural studies are necessary. No doubt many patients like the ones discussed actually have histoplasmosis, but I question whether all of them had the disease. Further clinical details and diagnostic support or proof in the form of specific tests and cultures were not mentioned.

DR. EDWIN F. HIRSCH, Chicago: In 1941 Dr. Paul H. Holinger removed tissues from the larynx of a male patient for biopsy. The sections did not indicate carcinoma, but revealed lesions of histoplasmosis. The organism was cultured from other biopsy material and a filtrate prepared which was used in making skin tests. The organism grew easily in the broth. The report of the skin testing was made by Paul A. Van Pernis, Miriam E. Benson and Paul H. Holinger (THE JOURNAL, **117**:436 [Aug. 9] 1941). The skin test elicited, in this patient, an immediate reaction (in 15 or 20 minutes) and a delayed reaction, which was maximum about 24 hours afterward and much like a tuberculin test. I raise the question about the character of the inclusions as Dr. Reimann did. It seems to me that more evidence of the character of the inclusions and that they are actually H. capsulatum is needed.

DR. ALAN RAFTERY, Detroit: We attempted to do a skin test on any patient showing symptomatic or morphological evidence of histoplasmosis; we performed skin tests on three children in our positive series. The reactions to the three skin tests were positive. This, however, is not significant, as an expected 10 per cent of the population, if limited to Detroit for life, will show positive skin reactions, while an even higher incidence of positive reactions will be seen in those who have visited states south of Michigan, where the expected incidence of positive reactions to histoplasmin skin tests may reach as high as 85 per cent of the population. While I advocate the use of the skin test as confirmatory evidence in the morphological identification of the disease, I more strongly advocate routine culture of tissues, particularly of mesenteric lymph nodes, to isolate the organism. The other related evidence that might be stated is that eight of the children in our positive series had chest roentgenograms. All eight showed hilar enlargement and pulmonary calcification of varying degrees, and all gave negative reactions to tuberculin tests.

14. Footnotes 1*e*, 2*b*, 3*f* and 3*k*.
15. Cawley, E. H., and Curtis, A. C.: Histoplasmosis and Lymphoblastoma, J. Invest. Dermat. **11**: 43-453 (Dec.) 1948.

THE DISLOCATED LENS

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Practically every issue of an ophthalmic journal has some reference to the surgical procedures employed or the complications encountered at the time of extraction of a cataractous lens. There is, however, only an occasional reference to the dislocated lens. The handling of such cases may tax the surgical judgment of the ophthalmologist. There are undoubtedly many cases in which a course of masterful inactivity is indicated. There are other instances in which operative intervention is justified or imperative. The primary purpose of this paper is to review the problem and to evaluate the surgical technics that may be employed. The term dislocated lens has been used rather loosely to apply to both luxated and subluxated lenses. In this presentation the terms subluxated or dislocated will be used synonymously and the term luxated will infer complete dislocation with loss of all zonular attachments.

The earliest case of dislocated lens was reported some two hundred years ago; however, it was nearly 100 years later [1] before any distinction was made between spontaneous and traumatic dislocated lenses. The observation of dislocated lenses in children without a history of trauma or infection introduced the concept that dislocated lenses might also be on a congenital basis. Clarke [2] reviewed the literature on ectopia lentis and adopted Ringelhan and Elschnig's [3] classification of dislocated lenses into three categories: (1) congenital, (2) traumatic and (3) secondary. The secondary dislocations are usually those which follow uveitis or degenerative changes in the eye.

The diagnosis of a subluxated lens is not always easy. Tremulousness of the iris in a phakic eye is usually indicative of at least partial dislocation. This may not always be present, and, as Heath [4] has pointed out, one must suspect a dislocation with a partially dilated pupil with border atrophy and thin areas, alteration in depth of the anterior chamber, segmental congestion over the ciliary body resembling mild scleritis, inconsistent refractive errors due to forward position and tilting of the lens, visibility of the edge of the lens or some evidence of the zonule when the pupil is dilated. Congenitally dislocated lenses should always be suspected in the lean asthenic person with constitutional abnormalities suggestive of arachnodactyly (Marfan's syndrome). The literature on ectopia lentis or congenital dislocation of the lens, terms which are synonymous, has been admirably reviewed by Clarke. Both he and Falls [5] have referred to the other congenital anomalies frequently associated with this condition. Most authors agree that surgical intervention should be attempted if, as the result of extreme dislocation or cataractous changes occurring in the lens, useful vision is unobtainable by refractive means. Evidence of iridocyclitis, glaucoma or progressive luxation are, of course, indications for removal of the lens.

The traumatic or secondary subluxated or luxated lens frequently presents a more immediate problem. These types are frequently associated with secondary glaucoma, and it is difficult to determine whether the dislocated lens initiates or accompanies the secondary glaucoma. Heath [4] has stated that "Once out of its bed the lens becomes a marauder and is in effect a foreign body within the eye." It is frequently associated with uveitis and all its drastic sequelae. Chandler and Johnson,[6] however, state that posterior luxation of the lens is well tolerated in the vitreous chamber and glaucoma does not necessarily occur. Suker [7] reported a case of posterior luxation of 30 years' duration with normal tension and 20/40 vision, and we have observed a case in which the lens has been luxated and lying in the vitreous for over five years and the patient's vision corrected to normal.

TABLE 1.—*Age Distribution in Lens Dislocation*

Age	Congenital		Traumatic		Secondary	
	Subluxated	Luxated	Subluxated	Luxated	Subluxated	Luxated
0 to 10	17	3	4	..	1	..
11 to 20	4	..	5	..	..	..
21 to 30	2	..	1	1	..	..
31 to 40	6	..	1	4	..	2
41 to 50	2	..	3	2	1	1
51 to 60	2	2	12	1	1	2
61 to 70	2	..	7	6	5	2
71 to 80	..	..	5	1	3	1
81 to 90	..	..	..	..	2	..
Total	35	5	38	15	13	8

The treatment of patients with subluxated or luxated lenses is usually associated with considerable pessimism on the part of the surgeon. A review of all patients admitted to the Wills Hospital during the past five years with a diagnosis of partially or completely dislocated lenses would tend to confirm this outlook. A total of 94 patients with this diagnosis were admitted to the various ward services during the past five years. Excluded from this study were all eyes with severe trauma or penetrating wounds, in which the presence of a dislocated lens was not recognized or was only one of several complicating factors.

Table 1 shows the age distribution in the three classifications of dislocated lenses. In this series there were 20 patients (40 eyes) with bilateral dislocated lenses, and their ages varied from 3 to 61 years of age. Ten were between the ages of 3 and 7 years. Of the 10 children, three had other members of the family with ectopia lentis. In one case there were eight members of the family with the same affliction. None of these eight, however, were included in this series. Table 2, in which eyes, not patients, are listed, shows the opera-

Read before the Section on Ophthalmology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

1. Sichel: Ztschr. f. d. ges. Med. **33**: 281 and 409, 1846.
2. Clarke, C. C.: Ectopia Lentis: Pathologic and Clinical Study, Arch. Ophth. **21**: 124 (Jan.) 1939.
3. Ringelhan, O., and Elschnig, A.: Ueber die Linsendislokationen, Arch. f. Augenh. **104**: 325, 1931.
4. Heath, P.: Secondary Glaucoma Due to the Lens, Arch. Ophth. **25**: 424 (March) 1941.
5. Falls, H. F.: Developmental Cataracts: Results of Surgical Treatment of 131 Cases, Arch. Ophth. **29**: 210 (Feb.) 1943.
6. Chandler, P. A., and Johnson, C. C.: A Neglected Cause of Secondary Glaucoma in Eyes in Which the Lens Is Absent or Subluxated, Arch. Ophth. **37**: 740 (June) 1947.
7. Suker, G. F.: A Dislocated Lens in the Vitreous of Thirty Years' Standing in One Eye, Ophth. Record **11**: 462, 1902.

tions performed and the complications encountered. Visual acuity in the 3 to 10 year age group is difficult to evaluate. However, three patients had recorded visual acuity of 6/21 in each eye. In the remainder the vision when obtained was 6/60 or 6/30 with correction. Of the three patients in the second and third decades one had bilateral lens loopings, one eye was lost because of retinal detachment but the remaining eye corrected to 6/12, one patient had successful bilateral discissions and one had optical iridectomies with vision in the better eye corrected to 6/21. Of the seven remaining patients, one had bilateral lens loopings and there developed bilateral retinal detachments. One patient, aged 51, had a bilateral removal of the lenses by means of traction and direct rupture of the zonule without appreciable loss of vitreous. The corrected vision was 6/15 and 6/21. This group of patients presents some interesting factors. Uveitis and secondary glaucoma were not noted as complicating factors, though retinal detachment destroyed the vision in three eyes and one eye was enucleated because of direct trauma to the eye six months after lens looping. As has been noted by others, despite a successful operation the vision was not corrected to normal.

TABLE 2.—*Congenital Dislocations*

Age	Discissions	Looping	Iridectomy	Rotation and Traction	None	Glaucoma	Detachment	Enucleation
0 to 10	8	4	..	..	8	..	..	..
11 to 20	2	2	..	..	..	..	1	..
21 to 30	..	..	2	..	..	..	..	..
31 to 40	..	3	..	..	3	..	2	..
41 to 50	..	2	..	..	..	..	..	1
51 to 60	..	2	..	2	..	..	..	..
61 to 70	..	1	..	..	1	..	..	..
Total	10	14	2	2	12	..	3	1

TABLE 3.—*Traumatic Dislocations*

	Subluxated					Luxated				
Age	Patients	Glaucoma	Detachment	Enucleation	No Operation	Patients	Glaucoma	Detachmentt	Enucleation	No Operation
0 to 10	4	1	..	..	2	..	..	..	..	..
11 to 20	5	2	..	..	2	..	..	..	..	..
21 to 30	1	1	1	..	..	1	..	..	..	..
31 to 40	1	1	..	..	1	4	1	..	3	..
41 to 50	3	2	1	..	..	2	1	..	2	..
51 to 60	12	5	..	..	2	1	..	..	1	..
61 to 70	7	2	3	..	1	6	1	1	1	1
71 to 80	5	1	..	..	2	1	1	..	..	..
Total	38	15	5	..	10	15	4	1	7	1

TRAUMATIC DISLOCATIONS

In over half of this total group of 94 patients the exciting cause could be attributed to direct trauma to the eye or face. There is no doubt that some of the cases considered as secondary dislocations were due to indirect trauma. It will be noted in table 1 that 37 patients in this group were 41 years old or older. Since direct trauma to the face is probably less common at this age, this bears out the well known clinical phenomena that the zonule is weaker in the older age group. Unfortunately, in going over the records the presence or absence of vitreous in the anterior chamber and the condition of the visible zonule were not well described. In approximately 40 per cent of the eyes the lens was luxated; in two instances it was in the subconjunctival space; in three in the anterior chamber, and in the other cases in the vitreous body. In practically every instance when operation was performed, the lens was removed by loop extraction with varying amounts of vitreous loss. Eleven patients did not undergo operation (table 3). The incidence of secondary glaucoma was high. Nineteen patients had secondary glaucoma preoperatively. Three of these eyes were enucleated, and three had persistent elevation of tension after removal of the dislocated lens. Retinal detachments were noted in six patients. In one 61 year old woman it was noted prior to operation and the retinal detachment could be seen through the area of ruptured zonule and was successfully repaired. Four months later the lens was removed by the method of traction and rotation. The vitreous was viscid and presented, but there was no appreciable loss. This, the patient's only eye, has maintained 6/21 vision with correction for over three years. The other five patients had complete detachments and were not operated on. In this group of traumatic dislocations seven eyes were enucleated. In all the exciting trauma was severe and directly on the globe in every instance, and it will be noted that in every case the lens was luxated. The tension in three eyes was elevated, and in 2 the eye was soft with evidence of severe uveitis. In two cases the lens was in the subconjunctival space, and in one an expulsive choroidal hemorrhage occurred postoperatively. In approximately half of the 53 patients the final visual acuity was light perception or less. In those patients who maintained vision the acuity is on the whole probably better than indicated in table 4, since the final refraction was not always available. The figures, even as they are, leave little doubt that traumatic dislocation of the lens is a severe catastrophy.

TABLE 4.—*Visual Acuity*

	Congenital		Traumatic		Secondary	
Vision	Subluxated	Luxated	Subluxated	Luxated	Subluxated	Luxated
Nil	1	..	4	7	1	3
Light perception	1	..	8	6	3	2
2/60 to 6/60	10	..	17	2	3	1
6/60 to 6/30	7	..	2	..	2	1
6/30 to 6/21	5	2	1	..	2	..
6/21 to 6/15	4	..	2	..	1	..
6/15 to 6/12	2	..	..	..	..	..
6/12 to 6/9	1	..	3	..	1	1
6/9 to 6/6	..	..	1	..	..	..
Total	31	2	38	15	13	8

Twenty-one patients (table 5) had partially or completely dislocated lenses, secondary to degenerative or inflammatory changes in the eye. It is difficult to evaluate the history of trauma, and undoubtedly indirect trauma was the precipitating cause in many instances. Two patients had previously had a successful cataract extraction in the unaffected eye. Secondary glaucoma was noted in 10 eyes and definitely affected the end

result. In six cases the lens was in the anterior chamber, but in only three was the tension elevated. One eye was enucleated because of secondary hemorrhage, and a detachment was noted in one patient. The operative procedure in each eye was removal of the lens with a loop and closure of the wound according to the technic of the operator.

The operative treatment of dislocated lenses naturally varies from surgeon to surgeon. A complete review of the literature has been difficult, since in many instances the removal of a dislocated lens has been referred to in a discussion of a paper whose title deals with the other phases of intraocular surgery. It is noted that apart from the handling of congenital dislocations most surgeons have not distinguished between partial and complete dislocations, traumatic and spontaneous dislocations and the presence or absence of vitreous in the anterior chamber. A notable exception to this is Kirby's [8] paper.

Various surgical technics have been described and some special instruments have been devised to facilitate

TABLE 5.—*Secondary Dislocations*

	Subluxated				Luxated		
Age	Patients	Glaucoma	Enucleation	No Operation	Patients	Glaucoma	Detachment
0 to 10.....	1	..	..	1	..	..	..
11 to 20.....	..	..	..	..	..	..	..
21 to 30.....	..	..	..	..	..	..	..
31 to 40.....	..	..	..	..	2	1	1
41 to 50.....	1	..	1	1	1	..	..
51 to 60.....	1	..	..	..	2	1	..
61 to 70.....	5	4	..	..	2	..	..
71 to 80.....	3	3	..	..	1	1	..
81 to 90.....	2	..	..	..	..	..	..
Total.....	13	7	1	2	8	3	1

the delivery of the luxated or subluxated lens. Ewing [9] described the use of a broad keratome, which was placed behind the lens to facilitate its expression. Busacca,[10] Webster [11] and many others have suggested that the lens first be fixed in the anterior chamber with knife needles before extraction is attempted. Legrand [12] advocates purposeful complete dislocation of a subluxated lens. The patient is then turned on his face and the lens is fixed in the anterior chamber with a Graefe knife with detachable handle. The handle is removed and the operation completed with the patient on his back. Gardilcic [13] fixes the lens with a high frequency needle before the section is made and then removes the lens. Reese [14] and Irvine [15] both suggest a loop extraction under a conjunctival bridge. Bonaccolto [16] uses a limbus bases flap and loops the lens, and Spaeth [17] recommends a fornix bases flap. Verhoeff [18] and Lindner [19] have suggested that, in the presence of fluid vitreous and a completely luxated lens, the lens be irrigated into the anterior chamber. From this brief review there would appear to be only two points on which most surgeons agree: first, that in the presence of expected vitreous loss a complete iridectomy should be performed and second, that the lens should be removed with a loop or spoon.

Kirby [8] has written on the management of the subluxated and luxated lens and has fully described the various maneuvers in the different situations that may be encountered. Few surgeons can match his dexterity in the management of this difficult surgical problem. The basic facts, however, are sound and can be adapted and modified by the less experienced surgeon.

ECTOPIA LENTIS

Most ophthalmologists will agree with Knapp [20] that operative intervention in congenital dislocated lenses or ectopia lentis should be limited to those patients in whom the vision cannot be improved by any optical means. In later years, the dislocation may increase spontaneously or, as the result of trauma, the lens may become opaque or complete luxation may occur, giving rise to cyclitis and secondary glaucoma. If one could be assured that removal of the lens early in life would greatly improve the visual acuity the surgical risk might be worth while. Unfortunately, as Falls [5] and Lloyd [21] have pointed out, these patients frequently have other congenital abnormalities and, as in the case of congenital cataracts,[22] despite early and successful surgical intervention their vision is frequently poor. The advantage of early operation is that the hyaloid is usually intact and the degenerative changes have not occurred. The attempt at intracapsular removal of these lenses is complicated by the tough and resistant zonule.

In young children when operative intervention is deemed necessary the two needle discission described by Knapp [20] or Kirby [23] would appear to be the operation of choice. Knapp describes the technic: "One knife needle is introduced through the sclera just posterior to the limbus at a point opposite the free border of the lens. The free border of the lens is punctured at this point, and the instrument is held firmly in place. Another knife needle is then introduced through the sclera just below the site of the previous puncture, and it perforates the lens capsule at the same point as the first needle did. By approximating the two handles of the knife needles and passing one

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20. Knapp, A.: Operative Treatment of Congenital Subluxation of the Lens, Arch. Ophth. **27**: 158 (Jan.) 1942.
21. Lloyd, R. I.: The Clinical Course of the Eye Complications of Arachnodactylia, Tr. Am. Ophth. Soc. **45**: 342, 1947.
22. Owens, W. C., and Hughes, W. F., Jr.: Results of Surgical Treatment of Congenital Cataract, Arch. Ophth. **39**: 339 (March) 1948.
23. Kirby, D. B.: Personal communication to the authors.

handle over the other, one separates the two knife blades and enlarges the opening made in the capsule. The needles are then cautiously extracted in turn." Kirby [23] introduced two knife needles, but one from each side. This provides some counter pressure. The needles can enter the lens substance for some distance, and if they are then directed to cut in opposite directions the lens can be well divided.

If the operation is done carefully the lens will not be completely luxated and the gradual absorption of lens material will take place. Should swelling of the lens with secondary glaucoma occur, linear extraction is necessary. In our opinion this can be best accomplished according to the method recommended by Barkan [24] and Cordes [25] for the surgical treatment of congenital cataracts. A beveled keratome incision is made and, after lavage of the anterior chamber, air is injected through a preplaced knife needle tract in the cornea. The air will force lens material and vitreous, if present, away from the corneal wound.

Clarke [2] has stated that "skillful loop extraction following a wide preliminary iridectomy offers the best solution of a difficult problem." Though he was discussing congenitally dislocated lenses, reference to his data reveals that the group of patients varied in age from 27 to 71. Most ophthalmologists will agree that in adults it may be preferable to attempt to extract the lens. Though the eye may be quiet and without evidence to suggest the presence of vitreous in the anterior chamber, one should be prepared for this. In our opinion one of the most important factors in the surgical management of a dislocated lens is to have adequate anesthesia and to have an eye with no tension on it and preferably soft. This can be accomplished in most instances by the full complement of local anesthesia combined with thiopental (pentothal®) sodium and curare. Sutures are passed through the superior and inferior rectus muscle or through all rectus muscles as suggested by Lindner.[19] The type of corneal suture depends on the preference of the surgeon, although most operators, even the advocates of the postsection sutures, will agree that preplaced sutures are the most satisfactory. In our hands the McLean [26] type suture gives the best apposition of the wound.

In the congenital subluxated lens in young adults the anterior hyaloid is frequently intact and vitreous does not necessarily present as the section is completed. In some of these patients the dislocated lens is associated with a congenital miosis and an iridectomy is imperative. The lens is frequently small and somewhat spherical. Most surgeons will agree that its delivery is facilitated by an iridectomy. After the iridectomy the lens capsule can usually be grasped and the lens held away from the vitreous body. As a rule one cannot apply counter pressure and the lens must be delivered by rotation and direct rupture of the zonule as advocated by Kirby.[8] The lens may be supported by a loop during this procedure. A direct attempt at looping the lens may be successful, but because of the extremely tough and inelastic zonule the capsule may tear, severe uveitis may be initiated or sufficient traction may have been exerted to injure the ora serrata and give rise to a delayed detachment of the retina. Kirby's technic of stripping the zonule is not easy to master and may result in initial cases in tearing the capsule above. With the loop supporting the lens another grasp may be attempted or the anterior capsule removed with toothed capsule forceps and the lens delivered extracapsularly. If the anterior hyaloid is ruptured and vitreous is known to be present, every attempt should be made to deliver the lens intracapsularly. Once the lens has been delivered the sutures should be promptly tied and the usual toilet of the wound accomplished.

TRAUMATIC DISLOCATION OF THE LENS

The traumatic subluxated or luxated lens presents a no less difficult problem than the congenital dislocation. In many instances the diagnosis is obscured because of hyphema and gross disturbance to the eyeball. Some dislocations are of necessity candidates for enucleation. Again one must exercise considerable judgment to decide whether surgical intervention is or is not indicated. If the eye remains quiet and there is little indication that complete luxation will occur watchful waiting is probably the course most ophthalmologists will take. If the eye remains irritable and if there is evidence of secondary glaucoma, surgical intervention must be considered. If secondary glaucoma is the only consideration and is caused by vitreous block, transfixation of the iris or a peripheral iridectomy may be the operation of choice.[6] This, however, does not prevent glaucoma from recurring as the result of irritation set up by the dislocated lens.

In traumatic dislocations vitreous is almost invariably seen in the anterior chamber. If the subluxation is of fairly recent origin one can be assured that one will be dealing with viscid vitreous. The patient should be prepared in the manner described previously. The corneal section should be placed in such a position that the loop can be introduced most readily through the position of the ruptured zonule. As mentioned previously, in the face of vitreous loss a complete iridectomy should be performed. In the presence of viscid vitreous it may be difficult to grasp the lens capsule with forceps unless it is supported by a loop. If the capsule can be grasped with or without the support of a loop the same procedure of stripping the zonule may be attempted. In the presence of fluid or semifluid vitreous the lens may be supported by a spoon and then expressed by counter pressure on the cornea. In the presence of vitreous we believe that every attempt should be made to remove the lens in capsule, even if slightly more vitreous may be expelled. In our limited experience lens capsule and vitreous are not too compatible.

If the lens is luxated its removal may be even more difficult. If the lens is in the anterior chamber every effort should be made to keep it there. The use of miotics or actual fixation of the lens with one or two knife needles may be necessary before the corneal section is attempted. Because of the position of the

24. Barkan, O.: Procedure for Extraction of Congenital, Soft and Membranous Cataracts, Am. J. Ophth. **15**: 117, 1932.
25. Cordes, F. C.: Surgery of Congenital Cataracts, Am. J. Ophth. **31**: 1073, 1948.
26. McLean, J. M.: A New Corneoscleral Suture, Arch. Ophth. **23**: 554 (March) 1940.

lens only a small part of the section can usually be made with a Graefe knife or keratome. The section must usually be completed with scissors. Once the section is completed the upper pole of the lens can usually be grasped. The lens can then be delivered by direct traction with the forceps or a loop.

If the luxated lens lies in the vitreous cavity there is no other recourse but to remove it with a loop. Attempts to get the lens into the anterior chamber are usually unsuccessful if the vitreous is viscid. In the presence of viscid vitreous a loop is preferable to a spoon. Occasionally as the section is completed the lens will come forward and can be seen lying behind the iris. After the iridectomy is completed it may be possible to slide a loop under the upper pole and slide the lens out without undue trauma.

We are not of the school of thought that once vitreous presents or is lost the operation should be completed in a hurry. In fact, extra precautions should be taken to insure that the wound is completely sealed. At the conclusion of placing the sutures the anterior chamber is filled with air. This tends to force the vitreous away from the wound and it is surprising how little postoperative reaction is noted. We cannot agree with Rychener [27] that it increases the incidence of striate keratitis. In the presence of an iridectomy the air does not tend to get behind the iris and cause secondary glaucoma.

DISLOCATED LENSES FOLLOWING DEGENERATION

The occurrence of subluxation or luxation of the lens following recurrent attacks of uveitis is not uncommon. The patients may not be seen until the eye is blind and their complaints are those of secondary glaucoma. Careful examination of the eye, however, will usually reveal evidence of an old uveitis, while the absence of a history of direct trauma suggests dislocation due to the degenerative changes. However, the dislocation may occur while patients are receiving treatment for uveitis. It may not always be recognized if the lens is held in place by posterior synechia. A deepening anterior chamber in the course of a chronic uveitis should make one suspect the diagnosis—especially if iridodonesis can be elicited.

The handling of these cases depends on the condition of the eye and visual acuity. If the acuity is limited to faulty light projection surgical intervention other than enucleation is probably contraindicated. Should surgery be decided on the operation can best be carried out as described previously. In these cases one can expect the presence of fluid vitreous. One can also expect that if the lens is subluxated the remaining zonular fibers are exceedingly weak and may be ruptured during the preliminary surgical manipulations or on attempting to introduce the loop. For this reason every attempt should be made to get the lens into the anterior chamber and to fix it with a knife needle before the section is attempted. If the lens falls back into the vitreous chamber it may be elusive, despite use of the ultraviolet lamp and irrigation of the posterior chamber. Fishing blindly for a lens in the posterior chamber usually means loss of the eye, especially if the retina or choroid is scraped.

At the conclusion of the operation air or saline solution may be injected into the anterior chamber to help reform the collapsed globe. Fluid vitreous does not become incarcerated in the wound as does viscid vitreous. It is surprising how little postoperative reaction there is in some cases.

SUMMARY

A review of these cases of dislocated lenses reveals the fact that when the lens is out of its normal position serious sequelae are prone to occur. The congenitally dislocated lens offers the easiest surgical approach and the minimal complications. The final visual result is oftentimes disappointing, though this may be beyond the control of the operator. The patients with traumatic dislocated lenses have on the whole a poor prognosis for useful vision. At times this is due to associated trauma to the other parts of the globe. Heath [4] states that trauma is the predominating background of luxation of the lens. A definite history of trauma was obtained in 90 per cent of the 45 specimens of dislocated lenses seen in his laboratory, and Clarke [2] found that trauma was responsible for dislocation of the lens in 11 of 18 cases in the pathological collection of the Presbyterian Hospital during the period 1930 to 1937. Our study included only those hospital cases in which the primary diagnosis was a dislocated lens. No cases were included in which the primary operation was enucleation for a badly traumatized eye. In practically every instance the patient was admitted because of recurrent attacks of pain, uveitis and/or secondary glaucoma. The mechanism of secondary glaucoma has been discussed by Heath [4] and Chandler and Johnson.[6] As far as could be determined the preoperative diagnosis of glaucoma due to vitreous block was not made in any case. This may be due to the fact that the examiner was not aware of this mechanism of causation of glaucoma or that careful slit lamp examination was impossible because of the hazy cornea. The surgical approach in practically every case was the same, the use of a loop to remove the lens.

Dislocation of the lens due to secondary causes occurs predominately in an older age group. The prognosis is grave, but in this small series the outcome appears more favorable than in dislocations due to direct trauma. This may be due to several factors, the absence of direct trauma to the eye, the fragility of the zonule, permitting easier delivery of the lens, and the fluidity of the vitreous.

The operative technic for a patient with a subluxated or luxated lens will naturally vary from surgeon to surgeon. The usual routine for cataract surgery, however, should be varied to meet the existing circumstances. A careful examination of the eye to determine the site of rupture of the zonule and the presence or absence of vitreous will enable the operator to plan his surgical approach to achieve the best results. The use of a general anesthetic, such as thiopental sodium and curare, will also greatly reduce the hazards of the procedure. With a full complement of anesthesia it is

27. Rychener, R. O., in discussion on Reese, A. B.: Hyaloid Membrane Following Uncomplicated Intracapsular Cataract Extraction, Tr. Am. Ophth. Soc. 46: 94, 1948.

surprising what a small amount of vitreous may be lost, even in the presence of high tension. Firm closure of the wound, followed by the injection of air, will help avoid the complications of vitreous incarcerated in the wound.

CONCLUSIONS

A review of 114 eyes with subluxation or luxation of the lens confirms the fact that when the lens is out of its normal position serious sequelae occur. The congenitally dislocated lens offers the easiest surgical approach and the minimal complications. Patients with traumatic dislocation of the lens have the poorest prognosis for useful vision. No one surgical procedure can be adapted to all cases. Complete relaxation of the patient with local or general anesthesia will permit delivery of many subluxated lenses by direct traction and rotation. Vitreous loss is minimal in an eye devoid of all external pressure. Firm closure of the wound and the injection of air into the anterior chamber will help prevent the incarceration of viscid vitreous in the wound.

1930 Chestnut Street.

ABSTRACT OF DISCUSSION

DR. HANS BARKAN, San Francisco: Dr. McDonald approaches the subject of subluxated lenses with pessimism. The statistics confirm this point of view and I join in it. This means that the best of surgical judgment must be employed to obtain good results even in cases admitted to be favorable. If subluxated lenses cause no clinical symptoms and vision is satisfactory, they should be left alone as long as possible. When operation is indicated thorough examination and thoughtful analysis of the procedures to be employed, of which there are many varieties, are in order. In partially luxated lenses in youthful persons a combined procedure of fixing the lens at its visible edge with a knife needle, with a keratome corneal incision above and maximum dilatation of the pupil, then a capsule bite with toothed forceps and expression of nucleus and cortical debris with Hess spoons has served well. In total luxation, when the lens still hangs on by a few zonular fibers and tends to bob up into the pupillary area occasionally, I have occasionally succeeded in sliding it out on a broad spatula rather than using the destructive Weber loop. It is a temptation to fish for a lens in a mangled eyeball, after excising a ciliary body prolapse, in spite of a bloody vitreous, occasionally get it out, and suture a big scleral rupture; an enucleation is a better procedure as a rule. One learns in time not to be sentimental about a ruined and blind eye. Where there exists a fair surgical chance in removing a luxated lens in an otherwise fairly competent eye, go ahead slowly. The lens has often sunk to the bottom of the vitreous. The lens may, still attached to some zonular fibers, float up in sight behind the pupil. It may be possible to imprison it in the anterior chamber. If there is no secondary glaucoma or beginning cyclitis, there is no hurry. If the capsule is ruptured and the lens is juvenile, it has been known to be absorbed and the instances are numerous of lenses being retained in the vitreous for long periods with no symptoms. I agree that the operative results in cases without selection are poor in spite of thought and effort.

DR. HAROLD F. WHALMAN, Los Angeles: Dr. McDonald has presented an interesting and voluminous series of cases on luxated and subluxated lenses, a condition which we do not see frequently, and although the last word may not have been said regarding the handling of this condition, it is timely to emphasize a few points with reference to surgery. The criterion to be observed all the way through is control; control of the patient through adequate sedation or through general anesthesia, if this is decided on; the addition of curare to the thiopental (pentothal®) sodium as advocated by Clarke of New Orleans and Kirby of New York; complete control of the eye by the injection of procaine with the addition of hyaluronidase to aid in the diffusion of the local anesthetic; the application of a lid suture, even though a speculum is used, for control of the upper eyelid and certainly a control suture placed far enough behind the insertion of the superior rectus that bleeding is avoided. The danger is in striking one of the vessels at the insertion of the muscle, which hemorrhages and which complicates preparation of a flap. The control of complications includes the control of loss of vitreous by the use of a large complete iridectomy, which even though vitreous is lost will lessen incarceration of the eye and secondary glaucoma, so common following this type of surgery. The performance of intracapsular extraction of the lens by means of forceps, loop or erisiphake is preferable because it is inadvisable to leave remnants of the capsule, cortex or any portion of the nucleus of the lens within the eye. The one exception is congenital dislocation, in which needling is advocated, and subsequent irrigation when necessary. The preparation of the patient with preliminary injections of typhoid vaccine, 25 to 50 million units given two days before the operation, will reduce the amount of ciliary reaction. The use of antibiotics is indicated preoperatively and postoperatively, and I must mention also the antihistaminics, which are valuable adjuncts to reduce sensitivity to drugs and, possibly, postoperative tissue reaction.

DR. MEYER WIENER, Coronado, Calif.: I am sorry that removal of the lens by the Smith method was not mentioned. Dr. Barkan mentioned the use of a spatula when the lens could not be removed satisfactorily with the loop. The use of the spatula as advocated by Colonel Smith is one of his greatest contributions. He has always been known for work in the extraction of the lens in the capsule; not that this method was used often, but it called attention to the fact that it could be done. It was mainly through his efforts that advancement in removal of the lens in the capsule has progressed so much. I am not pessimistic about removing the lens in the capsule and the results. In fact, I am extremely optimistic because I have used the Smith method of removal with the flat spoon. If, in doing a cataract operation, the vitreous presents after the incision, I immediately introduce the spoon after first performing an iridectomy. Dr. McDonald properly stated that when vitreous is in the anterior chamber it is almost impossible to grasp the iris with the forceps; but it is not impossible to get an iris with an iris hook. One can pull out the iris with the hook regardless of the vitreous in the anterior chamber and then perform a preliminary iridectomy. Then, whether the lens is dislocated or partially dislocated, it can be brought forward into the anterior chamber with the Smith spoon. Instead of putting pressure on the globe and squeezing out vitreous, pressure is made between the cornea and the spoon and one can squeeze out the lens between the spatula and the cornea like one would shoot a bean between his thumb and finger. Two patients have been operated on in the past few years for Marfan's syndrome at the United States Naval Hospital in San Diego with excellent results, visual and otherwise. There is no need to see the lens. It can be brought out, even if it is not seen, with the Smith method; whether it is traumatic or not makes little difference, in my opinion, because, if the operation is done early the lens can be brought forward with little or no loss of vitreous. I wish to emphasize the importance of the Smith method because many persons who are doing surgery know nothing about it, have never heard of it, have never seen it done or, if they have seen it done, have not seen it done properly. When it is properly done it certainly gives excellent results, and one can afford to be optimistic.

DR. M. E. TRAINOR, Los Angeles: I would like Dr. McDonald to discuss accommodation in these cases. I recently had a case of dislocated lens in which there was 15/200 vision in each eye without any correction; with the correction of plus 3 plus 3 axis 180 the patient could see 15/30, but for close vision he could see nothing unless he had the paper 2 inches from his eyes. It was necessary for me to give him bifocals in which he had minus 24 for near reading. The con-

dition was not changed by cycloplegia except that the patient could use the aphacic space at the lower quadrant when the pupils were dilated and could hold the book somewhat farther away.

DR. P. ROBB MCDONALD, Philadelphia: Dr. Whalman stated that we should have the patient under control. I also think the surgeon should be under control and not try to do too much. Dr. Wiener mentioned the use of the spatula. I have used the spatula only in cases in which the vitreous was fluid. With viscid vitreous, I prefer to use the loop. One important point is that the surgeon should not always attempt to deliver the lens with either the spatula or even a loop. Under direct vision you may be able to support the lens with a loop and grasp it with forceps and rupture the zonale. The poor results in a few cases are due to the fact that the surgeon picks up the loop because the lens is dislocated, sweeps it through the vitreous around the lens bodily and pulls the lens out of the eye. If we try to resort to other, slightly gentler methods, postoperative complications may be fewer and the results better. I cannot answer Dr. Trainior's question about accommodation in his case except that the patient is using a different portion of the lens system for distance than that which was corrected with the plus 3 and plus 3 cylinder.

ACIDOSIS AND ITS THERAPEUTIC VALUE IN THE TREATMENT OF PSYCHOTICS

A PRELIMINARY REPORT

Julius I. Steinfeld, M. D., Des Plaines, Ill.

The beginning of the present study dates back to 1938 when a colleague and I reported [1] the occurrence of temporary acidity, very marked in many instances, in the blood and in the spinal fluid following shock treatment. The findings are surprising, since it is known that the living organism usually does not permit a major shift to the alkaline or to the acid side and that "the limits of p_H compatible with life are probably not higher or lower respectively than 7.8 and 6.8." [2] It occurred to us that there might be a correlation between the changes of the p_H values of the blood and spinal fluid on the one hand and the clinical results obtained by shock treatment on the other. In the present study we describe further investigations made in the attempt to establish a significant positive relation between a decrease in the p_H value (shift to the acid side) and clinical improvements achieved.

The observation of blood acidosis after convulsion treatments was corroborated in 1945 by Delay and Soulairac,[3] who also expressed the opinion that the acidosis is very probably an important factor in the therapeutic mechanism of convulsion therapy.

We have so far taken 197 p_H readings of the blood, and in spite of variations they show a definite consistency. For our experiments we have been using the p_H assembly of Leeds and Northrup with the quinhydrone electrode and the Beckman model G, with the calomel electrode. Before and after each series of examinations the accuracy of the instruments is checked against two solutions of known p_H values. The blood samples are examined immediately after being obtained. We are aware that minor changes in the p_H readings may occur for various fortuitous reasons; for example, temperature changes, exposure to air and fluctuations of electrode potential. We have therefore disregarded all minor deviations of the p_H and discuss only those of 0.1 unit or more. Since we use thiopental (pentothal®) sodium prior to the inducement of electric shock, we also had to examine the influence of this drug on the p_H of the blood. Doses of 0.25 to 0.5 Gm., as used for our purposes, do not affect the p_H.

A few typical examples will illustrate our results.

Patient Mul, a schizophrenic, while resting has a blood p_H of 7.5 (normal). Two minutes after convulsion treatment, the p_H falls to 7.0 and remains 7.0 for the next two minutes. After another two minutes the p_H rises to 7.1, followed by a return to normal within another five minutes.

Patient Det, a schizophrenic, while resting has a blood p_H of 7.6 (normal). During convulsion therapy the p_H falls to 7.4 and one minute after the treatment decreases further to 7.1. Three minutes after treatment the p_H rises to 7.15, and it returns to normal within another five minutes.

We observed such an acidosis irrespective of the form of shock treatment employed—pentylenetetrazole (metrazol®), electric shock or insulin coma.

Since spinal fluid, for obvious reasons, cannot be obtained as frequently as blood, it is much more difficult to detect p_H variations in the spinal fluid. However, we studied 72 samples from 15 patients. The samples were taken before and after each treatment in the case of convulsion therapy and during the coma in the case of insulin treatment. In 61 of the 72 instances no appreciable change of the p_H values was observed, but in 11 instances there was a marked drop. An example follows.

Patient H was a schizophrenic. The spinal fluid and the blood both showed p_H values of 7.4 (normal) before electric shock treatment was administered. An hour and 50 minutes after treatment the spinal fluid p_H was 7.2; the blood p_H had returned to its original value about 10 minutes after treatment.

In six of these 11 instances of spinal fluid examination there was a drop below 7.0, the lowest being 6.3. This unusual reading was observed in a sample taken from a schizophrenic patient whose initial spinal fluid p_H was 7.3. Forty-five minutes after the seizure, when the blood p_H had long since returned to normal, the spinal fluid p_H was as low as 6.3. In another spinal fluid sample, taken one hour and forty-five minutes later, the p_H was again normal (7.3). The probable explanation for the wide variation of results with samples of spinal fluid is that its buffer system is not so efficient as the buffer system of the blood, and, therefore, the rate of its buffering action varies. Also, we found the carbon dioxide content normal in low p_H samples of the spinal fluid, which would seem to indicate that other acids that cannot diffuse through the blood-spinal fluid barrier as rapidly as carbon dioxide are responsible for its low p_H. Gesell and Hertzman [4]

1. Steinfeld, J. I., and Gerber, L.: Some Biochemical Aspects of the New Treatments for Schizophrenia, read before the Ninety-Fourth Annual Meeting, The American Psychiatric Association, San Francisco, Calif., June 6-10, 1938.

2. Best, C. H., and Taylor, N. B.: Physiological Basis of Medical Practice, ed. 4, Baltimore, Williams & Wilkins Company, 1946, pp. 138-210.

3. Delay, J., and Soulairac, A.: Compt. rend. Soc. de biol. **137**: 330, 1943.

4. Gesell, R., and Hertzman, A. B.: Am. J. Physiol. **87**: 8, 1928.

have observed the same phenomena in their asphyxia experiments with dogs, in which the acidosis in the spinal fluid lagged behind that in the blood. Although these unexpectedly low p_H values in the spinal fluid, found on various occasions, cannot be without physiological significance, the data on spinal fluid p_H are too variable to serve as indicators of acidosis. Hence, in the following studies, the more reliable, quickly and easily obtainable blood p_H values alone are used as a guide.

Assuming that this shift to the acid side constitutes the important factor in shock treatment, we have tried to obtain a more intense and prolonged acidosis than is obtainable with orthodox methods. Here the blood p_H was studied before and after each treatment to serve as an indicator of the acidity obtained. It should be emphasized that several examinations show that there is no definite correlation between acidosis and the completeness of a convulsive reaction (apnea, cyanosis and so forth). Even after the most complete seizure, we often found the p_H lowered by not more than 0.1 or 0.2. In certain instances, when single electric shock treatments lowered the initial values no more than this, we administered a series of treatments in fast succession, until a sufficiently low blood p_H was obtained.

An example to illustrate this follows. Patient Ri, a woman aged 35 who was a paranoid schizophrenic, was institutionalized for progressively longer periods during the last two years and had received many electric shock treatments with alternating improvements and relapses. When this treatment-resistant patient was finally subjected to p_H studies, we found her "acid resistant," that is, one or even two successive treatments failed to lower the initial blood p_H of 7.6 beyond 7.45. This was confirmed in three different studies. We finally resorted to four electric shock treatments at five minute intervals, getting a step by step drop of about 0.1 after each treatment. The final p_H value obtained was 7.1. In this case, as well as in various similar cases, the low p_H marked the beginning of a change for the better. (It should be mentioned in this connection that no memory impairment or any other unwanted side effects have been observed after such multiple seizures. In fact, patients subjected to these multiple seizures showed less memory impairment than patients who received the same number in the form of single treatments spread out over a period of about one week.)

Trying to improve our clinical results along these lines, we endeavored to produce acidosis before administering shock by using various acidifying drugs. With doses considered safe, no appreciable changes in the p_H of the blood were obtained, although the urine did become acid. This led us to try to produce acidosis by dietary methods.

Four patients, three of whom had been schizophrenic for four to six years and one for two years, were chosen. None of these patients responded satisfactorily to orthodox shock treatment or to psychotherapy. They were subjected to a rigid diet of fats and proteins for 12 to 14 days. It was expected that the elimination of carbohydrates would facilitate the formation of ketone bodies, causing a shift to the acid side. Electric shock treatments superimposed on such a condition might then, we thought, produce a still more intense reaction. In fact, we succeeded in lowering the blood p_H by about 0.55 with a single electric shock treatment given to the dieting patient, a result which we had otherwise usually obtained with the administration of a series of these treatments only.

In each of these four patients, clinical improvement was noticeable toward the end of the dieting period; two of the patients showed dramatic improvements. The following example illustrates this.

Patient He, a schizophrenic man aged 44 who had had bizarre persecutory ideas for about two to three years and was constantly hallucinating, was irresponsive to electric shock treatments. He showed no clinical reaction (not even transitory) to a series of eight treatments consisting of two to three shocks each. He therefore was subjected to a two week diet combined with three treatments of the same type as before. After the termination of the combined treatment he showed insight into the delusional character of his ideas, returned to work and has been doing well since. He has now been observed for four months, with an examination about every two weeks.

There is a possibility that the production of acidosis by dietary methods alone (we have already observed a fall of 0.3 in the p_H value of a dieting patient) would lead to the desired results if such a treatment could be expanded over a sufficient time, probably four to six weeks. One could then spare the patient the superimposed electric shock treatments. However, we have observed that two weeks of such a diet is about as much as the patient will accept without resisting. It is planned, now, to study the results of a combination of ketone-producing diets and acidifying chemicals.

Though this is only a beginning and many more data will have to be obtained, these results do suggest an additional method in the therapy of treatment-resisting patients and perhaps will open new avenues of thinking about the etiology of the psychotic process.

The Forest Sanitarium.

Experimental Arteriosclerosis.—There is no doubt that the widespread arterial lesions of pyridoxine deficiency in the rhesus monkey bear a close resemblance to those of human arteriosclerosis. The fundamental pathologic process appears to be similar. The accumulation of a mucoid metachromatic material in the intima and the associated proliferation of cells and deposition of collagen and elastic tissue fibers in the mucinous matrix appear to constitute the basic pathologic processes in each.

While the histological analogy is substantial and it seems probable that comparable pyridoxine deficiency in man would cause lesions of the type seen in the monkey, it does not follow that pyridoxine deficiency is necessarily concerned in the genesis of the human disease. Further study will be essential to establish the possible role of this deficiency in arteriosclerosis. In the monkey pyridoxine deficiency develops in a subtle manner and does not have distinctive external manifestations. The human requirement for pyridoxine is not yet established.

The accumulation of lipids appears ordinarily to be a later development in the evolution of arteriosclerosis. The exact sequences occurring in the evolution of arteriosclerosis and the derivation of the fatty substances deserve more extended study. The postulate that mycopolysaccharides have a special affinity for lipids is attractive and should be investigated further.—James F. Rinehart, M.D., and Louis D. Greenberg, Ph.D., San Francisco, Pathogenesis of Experimental Arteriosclerosis in Pyridoxine Deficiency, *Archives of Pathology*, January 1951.

CLINICAL NOTES

THE RELIEF OF NEPHROSIS AFTER HEPATITIS

REPORT OF A CASE

Herbert Berger, M.D.
and
Jonathan Zoole, M.D., Tottenville, N. Y.

The relationship of hepatic to renal disease is exemplified by such naturally occurring pathological states as eclampsia or such artificial situations as that resulting from carbon tetrachloride poisoning. Medical literature abounds with references to the so-called hepatorenal syndrome.

This relationship is lent more significance by our observations on the therapeutic effect of acute hepatitis on a clinically proved case of lipid nephrosis in childhood. For example, Kuzma [1] noted that nephrosis due to sulfonamides is more common in patients with damaged livers than in others. Similarly 39 patients with renal dysfunction were improved by Morrison [2] after intensive treatment of a concomitant cirrhosis with a modification of the Patek regimen. In a like manner, barbiturate intoxication causing renal symptoms cleared with the use of choline and methionine in a case reported by Barclay and Cooke.[3] These isolated reports are by no means a complete review of the literature on this subject, but rather serve as examples of the reciprocal effects of these two organs.

Lipid nephrosis has been improved temporarily and even permanently by concomitant infection on many occasions. Typhoid [4] and measles,[5] particularly the latter, have had salutary effects on this disease. In fact, nephrotic patients are often exposed to measles purposely, with the hope that they may improve.[5c]

This report is unique in the literature as far as we can ascertain. It describes a child with typical lipid nephrosis, in whom, after acute hepatitis (probably of the homologous serum variety), there was complete amelioration of a serious nephrotic state for a period of six months.

REPORT OF CASE

G. S., a 3½ year old white child, was first seen by one of us (J. Z.) on Jan. 5, 1949. There was no history of any serious preceding illness, and the present visit was made for the relief of an infection of the respiratory tract. The parents wondered whether the boy was normal mentally, because he was apathetic in comparison with their other children. He was treated with an antihistaminic, diphenhydramine (benadryl®) hydrochloride, and an expectorant, ammonium chloride, since dry cough was the predominant symptom. On Jan. 17, 1949 his parents again brought him to the Clinic, primarily because his eyes were puffy and swollen. The cough was still present. The father then recalled that on previous occasions during the past year the child had this type of swelling, associated with dry paroxysmal cough.

On physical examination there were no other unusual findings aside from the pallor, waxy skin, edema and lassitude described. The urine contained albumin but no red blood cells or casts. Acute glomerular nephritis was briefly considered as a possibility and eliminated because of the absence of red blood cells or casts, hypertension or evidence of serious illness. The results of chemical studies of the blood showed the nonprotein nitrogen to be 21 mg. per 100 cc., total cholesterol 362.5 mg., protein 4.09 Gm., with albumin 1.99 Gm. and globulin 2.10 Gm., per 100 cc., a ratio of approximately 1:1 Doubly refractive bodies were not observed in the urine.

Since the findings suggested nephrosis and serum albumin was not available, the child was treated with plasma. This substance was given at weekly intervals in doses of one unit (250 cc.). By the end of February the swelling was less prominent and albumin was found in smaller amounts. The child was brought in irregularly for check-up. Plasma was given at intervals of approximately one month. During this time the albuminuria and edema were constantly present in varying amounts. The child was brought to the Clinic because of yellow skin and eye balls on Sept. 3, 1949.

On examination the presence of jaundice was revealed. The liver was palpable 2 fingerbreadths below the costal margin. The child looked more ill than on any previous visit but was not febrile. The urine contained bile (3 plus) and albumin (3 plus). The edema was moderate. The diagnosis was either acute infectious hepatitis or homologous serum hepatitis, with the latter more likely, since the child had received numerous plasma infusions. However, the plasma had all been lyophilized, a process which the manufacturer [6] states should have removed all the homologous serum hepatitis virus; nor were there any other instances of jaundice reported from the same batch of plasma as our patient received. On the other hand, there were no patients with acute infectious hepatitis in the community, nor had the child had contact with such a patient. Syringe contact probably was excluded here, as we had no other cases of hepatitis in the Clinic at that time or for six months previously. Viral studies could not be done, since the child was not hospitalized and facilities were not available. Consequently, this report has more clinical and less laboratory confirmation than we desired.

However, the striking part of the situation was that on September 16 the albuminuria disappeared completely for the first time since the patient was under observation, even before the jaundice subsided, on October 8. Results of further studies until March 1950 showed no albumin and no edema. More impressive than the laboratory phenomena was the change in the child. The listless quiet child, who had always been content to sit where placed, playing idly and disinterestedly with a toy so that he was "no trouble at all," became a vivacious active youngster who played vigorously, racing about the house with laughter and shouts to such an extent that his harrassed mother commented that she wasn't sure which state was worse.

We had decided to observe the youngster for six months before making this report to see how permanent the improvement might be. On March 31 he started to cough. The father called with great apprehension, since he said that this dry hacking always preceded the swelling of the face. His prediction was, unfortunately, only too accurate. The edema and albuminuria returned and at this date, June 1, 1950, are subsiding, without the use of plasma. The parents maintained

From the Berger Clinic.

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4. Gunta, M. L.: Lipoid Nephrosis Cured by Typhoid, Indian M. Gaz. **79**: 224-227, 1944.
5. (*a*) Schwarz, H.; Kohn, J. L., and Weiner, S. B.: Lipoid Nephrosis: Observations over a Period of 20 Years, Am. J. Dis. Child. **65**: 355-363 (March) 1943. (*b*) Schick, B.: Personal communication to the authors. (*c*) Telner, D., and Strauss, J.: Der Einfluss der Masern und des Nirvanal Exanthems und der Verlauf der Genvinen Nephrose, Monatsschr. f. Kinderh. **49**: 1-7, 1932.
6. Sharpe and Dohme Co.: Personal communication to the authors.

that the child never was so well as during this six month period. Some of his apathy has reappeared, but he has been better than he was before the attack of hepatitis.

COMMENT

There has always been some question as to the exact pathological state in this disease. While some have regarded it as an instance of renal tubular disease, others have looked on it as an expression of a generalized disease of protein metabolism. Epstein,[7] who was one of the early students of this condition, favored the latter explanation. He treated it with thyroid extract and high protein diet. The thyroid extract was used to stimulate metabolism, with consequent full utilization of the protein and improvement of the lipemia.

Our experience, in this instance, would tend to substantiate Epstein's views. We may hypothesize that this child's liver produced an albumin molecule that could traverse the renal mechanisms which ordinarily prevent the excretion of this substance. However, when the liver became deranged by viral disease, the albumin molecule synthesized there was altered, so that it approached the normal type and consequently was either resorbed by the renal tubular cells or not filtered through the glomeruli. Whatever the effect of the liver infection on the process, it was unfortunately short-lived. The original condition returned, although it was not so severe as it had been.

LEPTOSPIRAL IRIDOCYCLITIS

EVIDENCE OF HUMAN INFECTION WITH LEPTOSPIRA POMONA IN THE UNITED STATES

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Daniel D. Hankey, M.D.
and
Charles F. Cooper Jr., M.D., Atlanta, Ga.

Iridocyclitis may occur as a late sequel to acute systemic leptospiral infection. The interval between the initial infection and the ocular inflammation varies from three weeks to one year but is most commonly four to eight months.[1] Because of this long symptom-free interval, the etiologic role of the leptospirosis may not be recognized. Iridocyclitis in horses is commonly associated with infection by Leptospira pomona,[2] an organism which has only recently been discovered in cattle in this country.[3]

On the basis of the foregoing observations, it was thought worth while to carry out serologic tests for leptospirosis on patients with iridocyclitis at this hospital. The serologic technic employed was a microscopic slide agglutination test, using the following species of live Leptospira as antigens: icterohemorrhagiae, canicola, ballum, grippotyphosa, bataviae, saxkoebing and pomona.[4] As a screening method the serums were tested in a dilution of 1:300. One of nine serums thus far examined was found to agglutinate Lept. pomona in high dilution. Details of this case follow.

REPORT OF A CASE

A 22 year old white man was first examined on April 5, 1950. Four days previously he had become aware of a burning sensation in the left eye, "as if there were something in it." The eye had become reddened and so painful as to interfere with sleep the night before he came to the clinic. Examination of the left eye revealed suffusion of the conjunctiva and pericorneal injection. The corneal surface was intact, and the ocular tension was normal. Slit lamp examination disclosed cells in the anterior chamber and a few posterior synechias. Funduscopic examination was unsatisfactory. Vision in the left eye was 15/50, corrected to 15/25. The right eye appeared unaffected. No inflammatory lesion was found about the teeth or sinuses, and the roentgenogram showed that the chest was normal. The Kahn reaction of the blood was negative. The patient was treated by instillation of cycloplegic drugs and was given intramuscular injections of sterile milk. Symptomatic improvement was rapid, despite some further diminution in visual acuity. By May 8, however, his corrected visual acuity was 15/25, and treatment was discontinued. At a follow-up examination on September 18, the only remaining evidence of the iridocyclitis was small deposits of iris pigment on the anterior surface of the lens.

Blood serum obtained on April 14 agglutinated Lept. pomona in a dilution of 1:300. The serum was stored at —20 C. until September. At this time another sample of serum was obtained, and the titers of the two samples were compared. It was found that the serum of April 14 caused agglutination in a dilution of 1:6,400, and that by September 18 the titer had fallen to 1:1,600.

Subsequent questioning of the patient revealed a history of probable significance. In September 1949 he began work as a meat-cutter in an Atlanta abattoir, handling raw beef and pork. About 10 days after beginning this work he became ill with "influenza," the symptoms being severe headache, shaking chills, fever and nausea. He stated he had not had jaundice or aching pains in his muscles. He did not recall that his eyes had been injected or that there had been photophobia. There also had been no stiffness of the neck and no cough or other respiratory symptom. He remained in bed at home for one week and was able to resume work after 10 days. In January he changed jobs and began working in the warehouse of a trucking company. He was engaged in this employment when the iridocyclitis developed.

COMMENT

It seems highly probable that the acute illness which developed in this patient within a few days after beginning work in the slaughter house represented an acute leptospiral infection, possibly taking the form of a benign aseptic meningitis.[5] The diagnosis of lepto-

7. Epstein, A. A.: The Nephroses, Bull. New York Acad. Med. **13**: 621-644, 1937.

From the Grady Clay Memorial Eye Clinic, Grady Memorial Hospital, and the Departments of Medicine and Ophthalmology, Emory University School of Medicine.

1. Gsell, O.: Clinic on the Leptospiroses, Ergebn. inn. Med. u. Kinderh. **1**: 367, 1949.

2. Heusser, H.: Periodic Inflammation of the Eye in Horses: A Leptospirosis? Schweiz. Arch. Tierh. **90**: 288, 1948., Yager, R. H.; Gochenour, W. S., Jr., and Wetmore, P. W.: Recurrent Iridocyclitis (Periodic Ophthalmia) of Horses, J. Am. Vet. M. A. **117**: 207, 1950.

3. (*a*) Reinhard, K. R.; Tierney, W. F., and Roberts, S. J.: A Study of 2 Enzootic Occurrences of Bovine Leptospirosis, Cornell Veterinarian **40**: 148, 1950. (*b*) Gochenour, W. S., Jr.; Yager, R. H., and Wetmore, P. W.: Antigenic Similarity of Bovine Strains of Leptospirae (United States) and Leptospira Pomona, Proc. Soc. Exper. Biol. & Med. **74**: 199, 1950.

4. The Lept. pomona was obtained from Lieutenant Colonel R. H. Yager, Veterinary Division, Army Medical Center, Washington, D. C. The organism was isolated from a case of bovine leptospirosis by Reinhard, Tierney and Roberts.[3a] The others were obtained from Dr. M. K. Ward, Communicable Disease Center, United States Public Health Service, Chamblee, Ga.

5. Gsell, O.: Leptospirosis Pomona: Swineherd's Disease, Schweiz. med. Wchnschr. **76**: 237, 1946.

spiral iridocyclitis in this case is, of course, only a presumptive one, based on serologic findings. Nevertheless the high titer of antibodies against Lept. pomona and occupational exposure make it highly probable. Numerous examples of Lept. pomona infection in human beings have been recognized in other parts of the world, especially Australia [6] and Switzerland,[5] but none previously in North America.

SUMMARY

A case of acute iridocyclitis has been observed in a young man, whose blood serum had a high titer of antibodies against Lept. pomona. It is believed that the iridocyclitis was a late sequel to a systemic leptospiral infection that the patient acquired while working in an abattoir seven months previously.

ADIE'S SYNDROME: A BENIGN DISORDER SIMULATING TABES DORSALIS

Arthur B. Kern, M.D., Providence, R. I.

The association of a tonic pupil and the absence of tendon reflexes was first described independently by Saenger [1] and Strasburger [2] in 1902. However, it was not until Adie's [3] clear delineation of the syndrome 30 years later that it received the serious consideration it deserved. He described the disorder as (1) the complete form—typical tonic pupil and absence of reflexes—and (2) the incomplete forms—(*a*) tonic pupil alone, (*b*) atypical phases of the tonic pupil alone, (*c*) atypical phases of the tonic pupil with absent reflexes and (*d*) absent reflexes alone.

Numerous reports concerning the syndrome which now bears Adie's name have since appeared, but these have been predominantly in journals devoted to ophthalmology and neurology. The recent observation of a misdiagnosed case of Adie's syndrome has suggested the need for focusing of general attention on this benign entity which has so frequently been erroneously interpreted as a manifestation of tabes dorsalis.

THE TONIC PUPIL

The pupillotonic phenomenon is characteristically unilateral, with the involved pupil considerably larger than normal and usually oval or irregular in shape.

The direct and consensual reactions to light are completely or almost completely absent. However, after about an hour in the dark, the pupil dilates, and on exposure to bright light a slow contraction may be observed after a brief interval; often this continues until the pupil becomes smaller than it was before it dilated in the dark. After removal of the light the pupil, again after a short delay, dilates to its orignal size.

Perhaps the most striking feature of the tonic pupil is its behavior on convergence. Adie,[3b] in describing the phenomenon, says: "If the patient fixes on a near object and continues to gaze at it intently the pupil, sometimes after a delay of several seconds, contracts slowly and with increasing slowness through a range often greatly in excess of the normal; contraction down to pinhead size is not uncommón; the larger pupil then becomes smaller than its fellow." After relaxation of the effort to converge, contraction may continue, the pupil may remain fixed for a few seconds or it may begin to dilate slowly. Dilation once started proceeds even more slowly than did the contraction. The accommodation reaction is occasionally affected, so that on fixation of a distant object the sluggishness of dilation may produce blurring of vision.

The tonic pupil responds normally to mydriatics and miotics. Recently, Lowenstein and Friedman [4] demonstrated that twelve to twenty minutes after local application of physostigmine the ability to react to light and to dilate for distant vision is restored.

Atypical forms of the tonic pupil manifest various degrees and combinations of the features described.

THE TENDON REFLEXES

Loss of tendon reflexes is characteristic of the complete form of Adie's syndrome. Most frequently there is an absence of one or both ankle jerks, and it has been observed that loss of other tendon reflexes does not occur in the presence of both ankle jerks. Kennedy and his co-workers [5] reported two cases in which there was an absence of all the deep reflexes.

Several authors have expressed skepticism concerning Adie's fourth subdivision of the incomplete syndrome, absent reflexes alone. According to Jelliffe,[6] absence of tendon reflexes occurs in 1 to 2 per cent of normal people, therefore making it a diagnostically unreliable sign.

GENERAL FEATURES

All reports have shown a decidedly greater incidence of Adie's syndrome among females. The disorder is usually seen in young adults, although it has been noted in children.[7]

The etiology and pathogenesis of Adie's syndrome are still obscure. Certain French authors have maintained that some cases are due to syphilis, but this view has not been generally accepted. Although its cause is as yet unknown, the benign nature of this condition has been established. Moore [8] cited the case of a patient who had been aware of the pupillary asymmetry for 47 years, with no complications arising. Weber,[9] in 1933, examined the patient originally reported on by

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6. Derrick, E. H.: Leptospira Pomona, M. J. Australia **1**: 431, 1942. Assistant Dermatologist, Department of Dermatology and Syphilology, Rhode Island Hospital.

1. Saenger, A.: Über die Bezeichnung "myotonische Pupillenbewegung," Neurol. Centralbl. **21**: 1137, 1902.

2. Strasburger, J.: Pupillenträgheit bei Akkomodation und Convergenz, Neurol. Centralbl. **21**: 1052 and 1388, 1902.

3. (*a*) Adie, W. J.: Argyll Robertson Pupils True and False, Brit. M. J. **2**: 136, 1931. (*b*) Tonic Pupils and Absent Tendon Reflexes: A Benign Disorder Sui Generis; Its Complete and Incomplete Forms, Brain **55**: 98, 1932.

4. Lowenstein, O., and Friedman, E. D.: Adie's Syndrome (Pupillotonic Pseudotabes), Arch. Ophth. **28**: 1042 (Dec.) 1942.

5. Kennedy, F.; Wortis, H.; Reichard, J. D., and Fair, B. B.: Adie's Syndrome: Report of Cases, Arch. Ophth. **19**: 68 (Jan.) 1938.

6. Jelliffe, S. E.: The Myotonic Pupil: A Contribution and a Critical Review, J. Neurol. & Psychopath. **13**: 349, 1933.

7. McKinney, J. M., and Frocht, M.: Adie's Syndrome: A Non-Luetic Disease Simulating Tabes Dorsalis, Am. J. M. Sc. **199**: 546, 1940.

8. Moore, R. F.: The Non-Luetic Argyll Robertson Pupil, Brit. M. J. **2**: 843, 1925.

9. Weber, F. P.: Dr. Markus's Original Case of Markus's Syndrome ("Myotonic Pupil" with Absence of Patellar and Achilles Reflexes) Shown 27½ Years Ago, Proc. Roy. Soc. Med. **26**: 530, 1933.

Markus[10] in 1906; the tonic pupil and absence of reflexes were still noted but she was otherwise asymptomatic. Rudolf[11] observed a patient with Adie's syndrome over a period of 32 years, during which time the condition remained benign.

As illustrated by the case to be reported, Adie's syndrome is of medical significance because of the frequency with which it has led to the erroneous diagnosis of tabes dorsalis. The confusion is primarily due to the resemblance between the tonic pupil and the Argyll Robertson pupil. That this resemblance is only superficial is apparent from the table.

REPORT OF A CASE

H. C., a 27 year old white woman, during the course of a premarital examination, was observed to have no knee or ankle jerks and pupils of unequal size, with failure of the left pupil to react to light. Although sexual exposure was denied and blood Wassermann and Hinton reactions were negative, she was told that she had syphilis of the nervous system and was referred to the author for treatment.

The pupillary inequality had been noted for approximately five years and was not accompanied with visual disturbances. There was no history of lightning pains, gastric crises or other sensory and motor abnormalities characteristic of tabes. Both

Differences Between the Tonic Pupil and the Argyll Robertson Pupil

	Tonic Pupil	Argyll Robertson Pupil
Sex	Predominantly in females	Predominantly in males
Incidence	Usually unilateral	Usually bilateral
Size of pupil	Dilated	Contracted
Reaction to light	None; however, after the patient has remained in the dark, a response can be elicited	None
Convergence and accommodation reactions	Sluggish contraction and dilation	Reaction normal and prompt
Response to mydriatics	Prompt and complete dilation	Slow and incomplete dilation
Evidence of syphilis	Absent	Present

the patient and her parents denied having received antisyphilitic therapy, and repeated tests of their blood for syphilis elicited negative reactions. Examination of the patient's spinal fluid showed absence of cells, normal total protein and negative reactions to the colloidal gold and Wassermann tests.

Physical examination, including thorough neurological testing, revealed normal conditions except for absence of ankle and knee jerks and presence of an abnormal left pupil. The latter was about twice the size of its mate and was oval in shape, with the long axis in the horizontal plane. It did not react to light when tested in the usual manner. However, after the patient had remained in the dark for an hour, sudden exposure to bright light resulted in a slow contraction after a delay of a few seconds. In testing the power of convergence, it was noted that the left pupil, again after a delay of several seconds, contracted very slowly until it reached a slightly larger than pinhead size. After relaxation of convergence the pupil slowly dilated. Atropine and physostigmine produced prompt, normal dilation and contraction respectively.

The diagnosis of the complete form of Adie's syndrome was made. Treatment was twofold: The patient was reassured as to the absence of syphilis, and the benign nature of her affliction was made clear.

SUMMARY

The characteristic signs of Adie's syndrome are described, and the tonic pupil is compared with the Argyll Robertson pupil.

A case of Adie's syndrome which was misdiagnosed as tabes dorsalis is reported.

247 Waterman Street (6).

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Methionine (See New and Nonofficial Remedies 1950, page 367).

Tablets Methionine: 0.5 Gm. Tablerock Laboratories, Greenville, S. C.

Estrogenic Substances (Water Soluble) (See New and Nonofficial Remedies 1950, page 327).

Tablets Conestron: 0.3 mg. and 2.5 mg. (U. S. Patent 2,429,398). Wyeth, Inc., Philadelphia.

Ethinyl Estradiol (See New and Nonofficial Remedies 1950, page 335).

Tablets Eticylol: 0.02 mg. and 0.05 mg. Ciba Pharmaceutical Products, Summit, N. J.

Methylthiouracil (See THE JOURNAL, Oct. 21, 1950, page 623).

Tablet Thimecil: 50 mg. (U. S. Patent 505,850). Physicians' Drug and Supply Company, Philadelphia.

Nikethamide-U.S.P. (See New and Nonofficial Remedies 1950, page 239).

Solution Nikethamide 25%: 1.5 cc. and 5 cc. ampuls. A solution containing 0.25 Gm. of nikethamide in each cc. E. S. Miller Laboratories, Los Angeles.

Testosterone Propionate-U.S.P. (See New and Nonofficial Remedies 1950, page 360).

Solution Testosterone Propionate in Oil with Benzyl Alcohol 2%: 10 cc. vials. A solution in peanut oil containing 25 mg. or 50 mg. of testosterone propionate in each cc. Preserved with 0.5 per cent chlorobutanol. Carlo Erba, Inc., New York.

Vitamin B_{12}-U.S.P. (See New and Nonofficial Remedies 1950, page 492).

Solution Crystalline Vitamin B_{12}: 1 cc. ampuls and 10 cc. vials. A solution containing 15 micrograms of vitamin B_{12} in each cc. The 10 cc. vial is preserved with 0.5 per cent carbolic acid. The Smith-Dorsey Company, Lincoln, Neb.

Solution Crystalline Dodecabee with Benzyl Alcohol 1.5%: 10 cc. vials. A solution containing 15 micrograms of vitamin B_{12} in each cc. E. S. Miller Laboratories, Inc., Los Angeles.

Penicillin for Inhalation (See New and Nonofficial Remedies 1950, page 139, Penicillin for Inhalation or Oral [Sublingual and Pediatric] Administration).

Powdered Crystalline Sodium Penicillin G: 100,000 units in Dispolator vials. E. R. Squibb and Sons, New York.

Pertussis Vaccine (See New and Nonofficial Remedies 1950, page 447).

Pertussis Vaccine: 12.5 (three immunizations) and 20 cc. (five immunizations) vials. 20,000 million H. pertussis in each cc. Preserved with thimerosal 1: 10,000. Sherman Laboratories, Detroit.

10. Markus, C.: Notes on a Peculiar Pupil Phenomenon in Cases of Partial Iridoplegia, Tr. Ophth. Soc. U. Kingdom **26**: 50, 1906.

11. Rudolf, G.: Tonic Pupils with Absent Tendon Reflexes in Mother and Daughter, J. Neurol. & Psychopath. **16**: 367, 1936.

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AS A MAN THINKETH

The January 1951 issue of *Harper's Magazine* contains a statement by a certain Bernard DeVoto, whose writings have appeared previously in that magazine. In the Jan. 10, 1951, issue of the *New York Times* is a letter from Ernest P. Boas, whose off-center leaning is well known to physicians. About the same time, a letter by Theodore M. Sanders, a member of the board of directors of the Committee for the Nation's Health, was sent to the editors of one or more newspapers. All these communications had a similar twist in their criticisms of the American Medical Association. Perhaps this similarity was coincidental, but no doubt many readers would regard it as a strange coincidence, especially because of their appearance at about the same time.

Each statement—DeVoto's, Boas' and Sanders'—is replete with shaded inferences and veiled hints, plus a few misstatements of fact, which indicate the writer's personal feelings and desires. "As a man thinketh, so is he." They are cleverly worded missiles that may or may not reach their target; this will depend on the susceptibility of the reader's mind. While some may regard several passages as downright vicious, others who are more tolerant may excuse them as due to ignorance. However, when a profession that devotes its life to the prevention of sickness is maligned by distortion of truth or the presentation of half truths, it should not let pass unchallenged the charges levelled by its critics. It makes no difference whether the distortion of truth is due to ignorance or wilful deceit.

DeVoto in his "Letter To a Family Doctor" seems to take particular pleasure in attacking statements issued over the name of Elmer L. Henderson, President of the American Medical Association, and those released by the National Education Campaign. His tirade suggests release of pent-up ill will and is so forceful and continuous that it becomes almost exhausting to read. It reminds one of the popular song of some years ago "Little Man You've Had a Busy Day." When DeVoto infers that the literature released by the National Education Campaign favors "distortion and demagoguery," he apparently overlooks the possibility that these words can be hurled back at his article. When he says "The AMA has fought hard against comprehensive prepayment plans. It has tried to kill those that have succeeded," he shows a disregard for the truth that is shocking. When he speaks of vilification he should reexamine his own words. And when he accuses the American Medical Association—which consists of practicing physicians from all over the country—of anti-Semitism he is stooping to the rabble-rousing level that he charges to the Association. Perhaps DeVoto might sometime examine the membership lists of the American Medical Association and of the state and county organizations. If his charges were not so libelous there would be humor in his statements: "The public does not consider misrepresentation ethical. The AMA is not promoting public health and welfare by intimidating its members, trying to frighten laymen, lapsing into anti-Semitism, and accusing a government which has also sworn to promote the public welfare, of conspiring with Communists to stamp out freedom in the United States." Mr. DeVoto should remember that misrepresentation is also unethical for writers.

Boas likewise is careless with the truth when he asserts, among other charges, that the American Medical Association has "all but forsaken" its purposes "to promote the scientific and educational aspects of medicine and to work toward the improvement of medical care for the people of this country" and "has devoted the bulk of the huge sums that were raised through the assessment of 1949 and the dues of 1950 to political and lobbying activities to preserve the comfortable status quo in medicine and to defeat every measure designed to benefit the people." If Boas wishes to strip himself of the accusation that he is careless with the truth he might read and be guided by the mass of information presented to the American Medical Association House of Delegates at its meetings twice a year and by the many scientific and organizational reports appearing in THE JOURNAL throughout the year. Among other maligning charges, Boas writes:

> It has fought not alone national health insurance but has declared that every measure that has been offered in Congress to improve medical services is a "fringe" bill and must be defeated. So it has campaigned against the school health services bill, against cash disability benefits in case of illness, against federal aid to rural health plans and to local public health units and against federal aid to the medical schools . . . the American Medical Association and the state and county societies have resolutely refused to recognize, to assist or even to advise the many excellent voluntary health insurance plans that today are operating successfully under cooperative or other non-medical auspices.

As a final accusation Boas says: "Physicians who disagree with the policies of the American Medical Association have little opportunity to give effective expression to their views. The Journal of the American Medical Association and the state and county medical journals are virtually closed to the opposition. There is no freedom of the medical press."

For the benefit of Boas a few facts are offered:

During the most active phase of the National Education Campaign millions of pamphlets were distributed to organizations representing a large proportion of the population. More than 10,000 organizations went on record against socialized medicine, which, surely in some way reflects the success of this education program.

The American Medical Association has not only maintained its scientific and educational activities but has expanded them. The Councils on Medical Education and Hospitals, Foods and Nutrition, Industrial Health, Physical Medicine and Rehabilitation, Pharmacy and Chemistry, Medical Service and National Emergency Medical Service and various bureaus and committees have received larger budgetary appropriations from the Board of Trustees than ever before. In December 1950, the American Medical Association contributed $500,000 to a privately endowed fund for medical education to assist the medical schools of this nation. It allocated $10,000 for 1951 to the Commission on Chronic Illness, a joint enterprise of four large health organizations. It helps support the National Health Council. It has collaborated closely with the American Red Cross and with many other organizations. Its scientific journals and its books provide the medical profession with internationally acclaimed medical publications. And its two scientific meetings each year attract thousands of physicians.

The American Medical Association opposed only one section of the school health services bill, a section which would provide "free" medical care for persons from 6 to 18 years of age. It had no objection to the other provisions of the bill. It approved cash sickness disability payments for the needy on a grants-in-aid basis but opposed a national compulsory sickness disability insurance system.

The Association strongly favors expansion of local health units and was one of the first and most vociferous supporters of local health departments. At the present time it is considering amendments to bills that have been proposed in Congress for federal financial assistance to local health units for the purpose of assuring local control. Federal financial aid to medical schools has been questioned by the American Medical Association because it does not believe that all other sources of money have been depleted and because all bills so far proposed have not assured complete freedom from federal control of medical education. The Association has yet to see a bill based on a formula that will insure continued free and local operation of the medical schools.

If Boas has a short memory or forgets to suit his own convenience, he can be reminded that the American Medical Association through Dr. James R. Miller led the way to the creation of the Commission on Chronic Illness. This Commission was sponsored jointly by the American Medical Association, the American Hospital Association, the American Public Health Association and the American Public Welfare Association, and its board of 20 nationally known lay persons and 12 physicians represents all viewpoints—not just that of organized medicine. Boas himself was invited (and accepted the invitation) to sit with other experts in the field of chronic illness to chart the Commission's course and plan for its studies and program. To date, the American Medical Association has allocated approximately $35,000 toward the Commission's support and provides its personnel with office space and equipment. The Commission is directed by Dr. Morton Levin, on leave from his post as associate director of the New York Department of Health. The Chairman is Mr. Leonard Mayo, a recognized authority in the welfare field. Among its staff members is a research analyst on leave from the Public Health Service of the Federal Security Agency.

As concerns lay-sponsored plans, Boas either is ignorant of the facts or chooses to misinterpret them. The American Medical Association has conferred several times with representatives of the voluntary health insurance plans under so-called cooperative or non-medical auspices. In fact, these representatives and the American Medical Association Council on Medical Service have developed suggested principles for guidance to local and state medical societies in their consideration of such plans. For the American Medical Association to approve a local prepayment plan before the local medical societies have done so is not in keeping with the democratic processes under which medical organizations operate. Probably Boas would be among the first to criticize the American Medical Association for assuming such authority as is now properly lodged in local societies. When requests for approval of lay-sponsored plans come to the American Medical Association through proper channels, i. e., the county and state medical societies, they will receive every consideration, and the representatives of the plans will be advised and conferred with. In the one instance in which a request for recognition of a lay-sponsored plan has come to the American Medical Association through proper channels, the American Medical Association representatives have met with representatives of the plan and have cooperated and advised. If Boas' memory were a bit longer, he would also recall that the American Medical Association conferred with and advised Dr. Sayer during the development of the United Mine Workers Medical and Hospital Program and gave this lay-sponsored program the fullest cooperation.

Boas' implication that the American Medical Association is not working toward the improvement of medical care for the people of this country can be dismissed most kindly by the conclusion that it can only be the result of ignorance concerning the work of the American Medical Association. To even list the activities of the American Medical Association for the purpose of improving the medical care for the people would require pages. For example, some of the activities of just one of the American Medical Association's Councils include:

Improvement of medical care programs for the indigent and medically indigent

Promotion of the creation of community health councils, through which professional and lay groups may work jointly to solve health problems

Devising of emergency call systems that will quickly bring physician and patient together in time of need

Increase in the scope and benefits of voluntary health insurance plans

Location of physicians in areas needing a physician and offering to such areas of suggestions as to ways and means of attracting qualified medical men

Evaluation and improvement of medical care programs for industrial workers

Evaluation and improvement of maternal and child care programs

Evaluation and improvement of medical programs for the veterans

Creation of standards for voluntary health plans sponsored by nonmedical groups

These standards suggested and adopted to date are all in the interest of present and potential members of such groups.

Physicians who disagree with the policies set by the House of Delegates of the American Medical Association can express their disagreement to the House. If they care to attend county and state medical meetings, they can meet the delegates whom they and their colleagues elect by vote to represent them in the House. This policy-making body of the Association is composed of representatives from every state medical society on a basis of one delegate per 1,000 or fraction thereof, members in the state society. If Boas complains that his ideas find too little expression in the policies of the American Medical Association, it is because they represent the thinking of a small minority, which is a fact he well knows, but which he ignores in his verbal attempts to hoodwink some of the public into believing otherwise.

When Boas decries insufficient opportunity to express his ideas in THE JOURNAL, he admits that the majority do not believe as he does. THE JOURNAL publishes much that is controversial and that reflects opposing views, but it is the official publication of the American Medical Association, and its limited number of pages must be used largely to meet the wishes and needs of the majority of the members of the Association, not the wishes of a minority politically inclined or socialistically minded faction. Communists also have long deplored the failure of the American press to give them equal space and editorial privilege with noncommunist groups, even though they represented only a small part of the population. Communists also are the ones who would like to create a system that would destroy the very freedom that they shout is now denied to them. Their shouts are not convincing, however, because of the freedom that they have in the press and elsewhere, a freedom to which they are entitled only because the Constitution provides it and not because their actions deserve it. While the publications of the American Medical Association publish and will continue to publish helpful and desirable information developed to suit the expressed wishes of the majority of its members, of its policy-making House of Delegates and its various Councils and Committees, the Association does not propose to open without limit its publications to those who would build toward its eventual destruction any more than would the American government allow its citizens to destroy it by subversion, innuendo and misrepresentation.

Theodore M. Sanders' letter, to many readers, seems to supplement that of Boas, almost as if they were prepared as part of a carefully laid plan. Like Boas' it is not without its untruths. For example, he writes in the opening paragraph, "As a member of the American Medical Association, I have been asked in an editorial in the A. M. A.'s Journal to distribute copies of a 16 page comic book, designed by organized medicine to fight National Health Insurance." No such request has ever been made in the editorial pages of THE JOURNAL, and Sanders' untruthful statement, which is the first sentence of his letter, stamps it for the kind of communication it is. The rest of his letter does not deserve further comment.

The three letters mentioned in this editorial are excellent examples of the misinterpretation and rabble-rousing that their authors attribute to the American Medical Association. If the Association were as bad as these three critics have tried to say it is, it would not have the support that it has in its battle to maintain freedom in this country. The medical profession wants the best possible health for the nation, and it is studying day and night measures to obtain such health. But DeVoto, Boas, Sanders and others should understand now and for all time that the profession has no intention of selling short the people or denying what it believes is fundamentally right or is its moral obligation to pursue. It believes in health, and it believes in freedom. A nation like this can have both, a fact attested to by its constantly improving health standards. It is easy for someone to sit in an armchair and attack another person or organization, at the same time crying that something should be done. Neither DeVoto, Boas nor Sanders has offered a solution generally acceptable, although each has been willing to be critical. Perhaps their sincerity might be tested by examination of the health accomplishments in this country as an example of what can be done in an orderly, progressive fashion. Perhaps, on the other hand, they might not want to be convinced. "As a man thinketh, so is he."

ANNUAL CONGRESS ON INDUSTRIAL HEALTH

The Eleventh Annual Congress on Industrial Health, sponsored by the Council on Industrial Health of the American Medical Association, the Medical Association of Georgia and the Fulton County Medical Society of Atlanta, will be held in the Atlanta Biltmore Hotel, February 26-28. The program of the Congress appears in this issue on page 237. This, the first national meeting of its kind in the South, is a recognition of the importance of that great industrial area.

The three day session will stress teamwork as the key to successful industrial health services. It will also bring out the interrelation of industry and agriculture. Other panels and round tables will consider such problems as the cardiac in industry, health problems created by new chemicals designed to control pests, noise in industry, the industrial pulmonary dust diseases and the importance of industrial health in civil defense and manpower conservation.

The meeting will have as speakers and panel discussants leaders in industrial health, professional and nonprofessional, from all parts of the country. It will attract medical, industrial, labor, agricultural and welfare leaders.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

Although the first month of 1951 has not yet been completed, two things have already happened that carry great significance for the medical profession and for the country as a whole. You may be aware of the matters I am going to mention, but they are so closely tied in with our plans for the year that I want to discuss them briefly here, even at the risk of repetition.

First of all, the American Medical Association has taken the second step in its drive to provide needed funds for medical schools. It has organized, under the laws of Illinois, the American Medical Education Foundation, a nonprofit corporation for the receipt of funds for medical education. Contributions to the Foundation can be addressed to 535 North Dearborn Street, Chicago 10. The nucleus of the Foundation's nationwide fund, of course, is the $500,000 appropriated by the Board of Trustees of the American Medical Association during the December clinical session in Cleveland. As I said in my message to you last month, the appropriation of this money established a keynote for the coming year. It indicated once again that the medical profession can and will take forthright, vigorous action to preserve and extend in a voluntary, democratic way the tremendous values of America's great medical care structure. The establishment of the Foundation now implements that action and opens to all members of the profession the opportunity of contributing directly to the all-important training of medical personnel. Response to the appropriation has been most heartening. Earnest effort on our part to enlist the material as well as moral support of other great professions and groups, and of thousands of individuals, should be one of our major resolutions for 1951.

The second event I want to mention also is of national significance, particularly to the medical profession. Just a few days ago the United Medical Service, a Blue Shield medical care plan operating in the Metropolitan New York area, celebrated the enrolment of its two millionth member. It thereby became the second plan to reach that great enrolment figure and marked itself as one of the strongest bastions of the entire voluntary health insurance structure in the nation.

Credit for being the first to reach 2,000,000 goes to the Michigan Medical Service. Together, the achievements of these two great medical care plans illustrate dramatically the eternal truth which some of our detractors would deny—that voluntary health insurance is a growing, successful, practical method of taking the economic shock out of illness.

The United Medical Service, for instance, has reached its present size in six and one-half years. It operates in the 17 southern counties of New York State, with the active approval of the Medical Society of the State of New York and of the medical societies in those 17 counties. Half a million members were gained during 1950—one fourth of the total enrolment. The goal for the next year or year and a half has been set at a further increase of 1,000,000 members. United Medical Service is determined to regain first place in total enrolment. It will have vigorous competition from Michigan—the sort of competition which assures that, within not too long a time, sound, low cost protection will be within reach of every American who needs and wants voluntary health insurance.

It is pertinent here to cite some figures showing the remarkable growth of the nonprofit medical care plans over the nation. There now are 72 Blue Shield plans in 41 states. Participating in their operation are 113,000 out of the 150,000 physicians who are in active, private practice. Last year the Blue Shield plans paid out $150,000,000 for surgical and medical services rendered to member patients; this at the rate of 82 cents of every dollar paid in premiums.

The Blue Shield plans are enrolling members at the rate of 28,000 every working day, and they now protect approximately 12 per cent of the population—more than 17,000,000 persons. Other nonprofit medical care plans not yet in the Blue Shield group cover an additional 2,250,000 persons. During 1950 the Blue Shield plans of the nation gained 5,000,000 new members, an all-time record growth.

The Blue Cross hospital plans kept pace. They added more than 3,000,000 new members in 1950, carrying them beyond the 40,000,000 mark in total enrolment. Out of every premium dollar, Blue Cross plans are paying out close to 88 cents in benefits for services to their member patients.

But the spirit of competition, of improvement, is by no means confined to the nonprofit medical care plans. Final and complete figures from the insurance companies and the various other agencies in the health insurance field will not be available for several months, but it is a conservative estimate, based on all known developments in 1950, that between 70,000,000 and 72,000,000 Americans now have some form of voluntary health insurance coverage.

When we consider, in addition to this remarkable growth in membership, the strides that the voluntary plans are taking in extending coverage to individuals not eligible for group enrolment, and the efforts that are being made to provide coverage for illnesses in the catastrophic category, we can well be confident of the fulfilment of predictions by medical economists that 90,000,000 Americans will be protected against the major costs of illness by voluntary health insurance within the next two or three years.

In two fields—private financial aid to medical colleges and the voluntary health insurance method of meeting medical costs—the nation is making heartening progress. It is a telling answer to the socializers, an inspiration to all of us who hold freedom dear.

ELMER L. HENDERSON, M.D.
Louisville, Ky.

ORGANIZATION SECTION

FEDERAL LEGISLATION

The following items were prepared by the Washington Office of the American Medical Association.

National Health Program

Representative Celler, New York, introduced a bill, H. R. 27, which would provide a national health insurance and public health program financed by a compulsory tax. The bill has three titles: findings and declaration; prepaid personal health service benefits, and development and expansion of health services. This bill is similar to other administration bills promoting compulsory health insurance.

H. R. 54, introduced by Mr. Dingell of Michigan, is the administration-sponsored omnibus compulsory health insurance proposal. It contains seven titles and is identical with the Murray and Dingell bills of the Eighty-First Congress. This bill does not delete the hospital construction amendment provision even though legislation on this provision was passed in the last Congress.

Representative Auchincloss of New Jersey introduced H. R. 146, which would make federal funds available to assist state programs of voluntary prepayment health plans, making medical and health services generally available at premium charges scaled to the income of subscribers. This bill is identical with those introduced during the last Congress by the author and several other representatives and by Senators Flanders and Ives. It is an omnibus bill covering matters such as local public health units, survey of health needs and federal aid to medical education.

Local Public Health Units

Two bills have been introduced to authorize assistance to states and political subdivisions in the development and maintenance of local public health units, particularly in national defense areas. They are identical. Representative Priest of Tennessee introduced H. R. 274, and Representative Dolliver of Iowa introduced H. R. 913. These bills restrict basic health services to (1) health education and information, (2) laboratory services, (3) vital statistics, (4) communicable disease control, (5) environmental sanitation, (6) maternal and child health demonstrations and (7) training of personnel. They exclude medical or dental treatment except as necessary for communicable disease control or to meet epidemics or other emergency situations and also exclude industrial accident programs. The emphasis in these bills is, first, the development of full time local health services in defense areas and, second, establishment of health units in such areas where such services are not now available.

Income Tax Deductions for Health Insurance

Several bills have been introduced to allow deduction for income taxes with respect to medical and dental expenses. Representative Boggs of Delaware proposes in H. R. 14 to grant deductions from gross income subject to tax on a formula beginning with total deduction of such expenses if the taxpayer's income is $2,000 or under. If gross income is over $10,000, all over 5 per cent may be deducted. Health insurance premiums are included as medical expense. Mr. Hand of New Jersey introduced H. R. 87, which provides for income tax deductions on a different scale and would allow deductions from final income tax premiums paid to nonprofit health plans and to the medical expenses beginning with 90 per cent if the taxpayer's income is $2,000 or less and ranging to 60 per cent of such expenses if the income is $10,000 or more. Representative Auchincloss of New Jersey introduced H. R. 151, which would permit deduction of subscription charges paid to nonprofit health insurance plans from adjusted gross income just as other medical expenses may be deducted under the present internal revenue law. H. R. 483, introduced by Representative Keating of New York, is similar to H. R. 87, except that it would allow deductions for premiums paid to commercial carriers as well as nonprofit health insurance plans.

School Health Services

H. R. 12, introduced by Mr. Coudert of New York, would enable the several states to make more adequate provision for the health of school children through the development of school health services for the prevention, diagnosis and treatment of physical and mental defects and conditions. This bill is identical with H. R. 4352 of the last Congress by the same author and retains subsection C, which would provide for treatment of all children, regardless of the economic status of the family.

Medical Care for Dependents of Military Personnel

Representative King of California introduced H. R. 135 to extend medical benefits now available to dependents of living Coast Guard personnel, to widows and their children. H. R. 342, introduced by Representative Rivers of South Carolina, would provide hospitalization and medical care for dependents of members of the uniformed services. This bill is identical with H. R. 9500 of the last Congress by the same author. It would direct the Secretary of Defense and the Surgeon General of the Public Health Service to provide immediately hospitalization and medical care in hospitals and dispensaries under their jurisdiction for dependents of servicemen at a per diem rate prescribed by the President. It proposes that the Secretary of Defense reactivate as necessary any military hospitals under his jurisdiction for this purpose. Medical facilities of all uniformed services would be available to such dependents without regard to the branch of service of the enlisted man.

Federal Aid to Nurse Education

Representative Bolton of Ohio introduced H. R. 910, a bill that would amend the Public Health Service Act and provide a program of grants and scholarships for education in the field of nursing. It would provide federal funds (estimated by Mrs. Bolton at $47,000,000 annually) for scholarships, construction, expansion of existing facilities and increase of teaching equipment and personnel for nurse education. The program would be administered by a new division (Division of Nursing Education) in the Public Health Service. There would also be set up a National Council on Nursing Education, which would be advisory. Federal funds would be apportioned to nursing schools for the cost of instruction, dependent on the level of education. The final section of the bill authorizes an appropriation to assist states which have plans for practical nurses training. Federal funds for this program would be administered by the U. S. Office of Education.

H. R. 516, introduced by Representative Lane of Massachusetts, provides for training of nurses for the armed forces, governmental and civilian hospitals, health agencies and defense industries, through grants to institutions providing such training. This bill would provide for a program similar to that during World War II popularly known as the Cadet Nurse Program.

Representative Bolton also introduced H. R. 911, which would provide for the appointment of male citizens as nurses in the Army, Navy and Air Force. This bill would amend the Army-Navy Nurses Act of 1947 and the Naval Reserve Act of 1938 by making male citizens eligible for appointment as nurses on a par with females.

Cancer Research

Representative Rooney of New York introduced H. R. 556, and Representative Murphy of New York introduced House Joint Resolution 39, both of which would authorize and request the President to undertake to mobilize, at some convenient place in the United States, an adequate number of the world's outstanding experts and coordinate and utilize their services in a supreme endeavor to discuss means of curing and preventing cancer. Several bills identical with these were introduced in the Eightieth and Eighty-First Congresses.

ELEVENTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

Hotel Atlanta Biltmore, Atlanta, Ga. Feb. 26-28, 1951

Sponsored by

The Council on Industrial Health of the American Medical Association

The Medical Association of Georgia

and

The Fulton County Medical Society

MONDAY, FEBRUARY 26, 10:00 a. m.—BALLROOM

ANTHONY J. LANZA, M.D., New York City, *Presiding*

INVOCATION

THE REVEREND WILLIAM C. BUDD, Atlanta

Welcome to Georgia

HAROLD DAVISON, M.D., President, Fulton County Medical Society, Atlanta

A. M. PHILLIPS, M.D., President, Medical Association of Georgia, Macon

A Tribute to Two Pioneers

JAMES E. PAULLIN, M.D., Past President, American Medical Association, Atlanta

ROUND TABLE ON HEALTH FOR THE SOUTHERN WORKER—THE SOUTH MEETS THE PROBLEM

JOSEPH T. SCOTT JR., M.D., New Orleans, *Moderator*

Industrial Health Is a Community Problem

JOHN K WILLIAMS, Executive Secretary, The Industrial Health Council, Birmingham

An Organization for Small Plant Service

LESTER M. PETRIE, M.D., Director, Division of Industrial Hygiene, Georgia Department of Public Health, Atlanta

Essentials of Good Industrial Hygiene

JOHN M. MCDONALD, M.D., Director, Division of Industrial Hygiene, Florida State Board of Health, Jacksonville

Expanding Industrial Health Needs Qualified Physicians

GRADIE R. ROWNTREE, M.D., Associate Professor of Preventive Medicine and Public Health, University of Louisville

Research

CARL A. NAU, M.D., Professor of Preventive Medicine and Public Health, University of Texas, Galveston

New Experiences Foretell the Future

JEAN S. FELTON, M.D., Medical Director, Oak Ridge National Laboratory, Oak Ridge, Tenn.

MONDAY, 12:15 p. m.—EMPIRE ROOM

LUNCHEON

Sponsored by the Local Committee on Arrangements

HOMER ALLEN, M.D., Decatur, Ga., *Presiding*

The Greater Atlanta Multiphasic Survey

LESTER M. PETRIE, M.D., Atlanta

MONDAY, 2:00-3:30 p. m.—BALLROOM

ECONOMIC POISONS

ROBERT A. KEHOE, M.D., Cincinnati, *Presiding*

This panel has been arranged with the Committee on Pesticides of the American Medical Association.

PARTICIPANTS:

JUSTUS C. WARD, Pharmacological and Rodenticide Section, Insecticide Division, U. S. Department of Agriculture, Washington, D. C.

PAUL FITTS, Horticulturist, Cornelia, Ga.

DONALD O. HAMBLIN, M.D., Medical Director, American Cyanamid Company, New York City

J. B. KAY, M.D., Past President, Georgia Section, American Academy of General Practice, Byron, Ga.

MONDAY, 3:30-5:00 p. m.—BALLROOM

HAND INJURIES

HENRY H. KESSLER, M.D., Newark, N. J., *Presiding*

PARTICIPANTS:

CHARLES A. MILLER, Personnel Department, The Texas Company, Houston

J. D. MARTIN JR., M.D., Associate Professor of Surgery, Emory University School of Medicine, Atlanta

ELKIN VOGT, M.D., General Practitioner, Lithonia, Ga.

MONDAY, 7:00 p. m.—BALLROOM

DINNER

ANTHONY J. LANZA, M.D., New York City, *Toastmaster*

Health, Industry and the Emergency

ELMER L. HENDERSON, M.D., President, American Medical Association, Louisville

Rehabilitation—An Urgent Community Need

JAMES E. PAULLIN, M.D., Atlanta, *Presiding*

The handicapped, especially in times of emergency, are a great national asset. Their records of productive capacity compare very favorably with their able-bodied brethren. This presentation, with assistance from the handicapped themselves and from national and local leaders, will demonstrate why Atlanta and every other industrial community need to develop rehabilitation services *now*.

TUESDAY, FEBRUARY 27, 10:00 a. m.—BALLROOM

ROUND TABLE ON THE CARDIAC IN INDUSTRY

CARTER SMITH, M.D., Atlanta, *Presiding*

PARTICIPANTS:

EDWARD S. ORGAIN, M.D., Associate Professor of Medicine in Charge of Postgraduate Education and Diseases of Metabolism, Duke University School of Medicine, Durham, N. C.

H. T. HARPER JR., M.D., Clinical Professor of Medicine, University of Georgia School of Medicine, Augusta

MAX R. BURNELL, M.D., Medical Consultant, General Motors Corporation, Detroit

ALFRED KENNEDY, American Federation of Labor, Atlanta

CHARLES MATHIAS, Congress of Industrial Organizations, Atlanta

CHANNING COPE, Journalist, Atlanta

E. S. PAPY, White Provision Company, Atlanta

J. B. HOWARD, Assistant Plant Manager, Ford Motor Company, Hapeville, Ga.

HENRY BOWDEN, Past President, Atlanta Bar Association, Atlanta

H. L. WINGATE, President, Georgia Farm Bureau Federation, Macon

TUESDAY, 12:00 m.—EMPIRE ROOM

LUNCHEON

Sponsored by The Georgia Association of Industrial Nurses and the Industrial Nurses Club of Atlanta

Integration

GLADYS L. DUNDORE, R.N., Executive Secretary, American Association of Industrial Nurses, New York City

TUESDAY, 2:00 p. m.—BALLROOM

THE PHYSICIAN IN INDUSTRY AND THE EMERGENCY

JAMES S. SIMMONS, Brig. Gen., USA, MC, Ret., Boston, *Moderator*

STEERING COMMITTEE ON INDUSTRIAL HEALTH DEFENSE:

JAMES S. SIMMONS, M.D., Dean, Harvard School of Public Health, Boston

ROBERT A. KEHOE, M.D., Kettering Laboratory, University of Cincinnati

HENRY H. KESSLER, M.D., Kessler Institute for Rehabilitation, West Orange, N. J.

EDWARD H. CARLETON, M.D., Medical Director, Inland Steel Company, East Chicago, Ind.

Committee consultants representing federal agencies and others directly concerned will be invited to attend.

Report of Subcommittee on Defense—Disaster Blueprint for the Industrial Physician

CHARLES-FRANCIS LONG, M.D., Philadelphia, *Chairman*

Report of Subcommittee on Manpower Conservation—Industrial Health and Peak Production

M. N. NEWQUIST, M.D., New York City, *Chairman*

WEDNESDAY, FEBRUARY 28, 9:00 a. m.—POMPEIAN ROOM

NOISE IN INDUSTRY

HOWARD P. HOUSE, M.D., Los Angeles, *Presiding*

(This program is arranged with the American Academy of Ophthalmology and Otolaryngology and the Council on Physical Medicine and Rehabilitation of the American Medical Association.)

Clinical Diagnosis of Occupational Acoustic Trauma

HOWARD P. HOUSE, M.D., Chairman of Subcommittee on Noise in Industry, Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology, Los Angeles

Environmental Aspects

Speaker to be announced

Clinical Study of Occupational Acoustic Trauma

DOUGLAS E. WHEELER, Ph.D., Field Representative of Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology, Los Angeles

Methods for Determining Percentage of Hearing Loss

HOWARD CARTER, Secretary, Council on Physical Medicine and Rehabilitation, American Medical Association, Chicago.

WEDNESDAY, 2:00 p. m.—POMPEIAN ROOM

INDUSTRIAL PULMONARY DUST DISEASES

LLOYD E. HAMLIN, M.D., Chicago, *Presiding*

Etiology and Pathogenesis

KENNETH MERRILL LYNCH, M.D., Dean of the Medical College of the State of South Carolina, Professor of Pathology, Charleston

Clinical Diagnosis and Course

BURGESS L. GORDON, M.D., Clinical Professor of Medicine, Jefferson Medical College of Philadelphia

Rehabilitation

OSCAR A. SANDER, M.D., Associate in Medicine, Marquette University Medical School, Milwaukee

Engineering Control

CHARLES R. WILLIAMS, Ph.D., Liberty Mutual Insurance Company, Boston

Multiphasic Screening Demonstration.

The Georgia Department of Public Health will have one of its survey screening teams adjacent to the meeting rooms to afford every one who cares to participate an opportunity to go through the battery of tests.

Small Plant Medical Service Demonstration.

Field trips will be arranged to the Petrie Clinic, a cooperative small plant industrial medical service.

MEDICAL NEWS

CALIFORNIA

Course in Cardiovascular Diseases.—Dr. Emil F. Holman, Stanford University School of Medicine, San Francisco, will participate in a continuation course on cardiovascular disease to be presented at the University of California Center for Continuation Study on April 15-17. He will discuss arteriovenous aneurysm and will participate in a colloquium on surgical aspects of cardiovascular disease.

CONNECTICUT

Yale Doubles Nursing Class.—The Yale School of Nursing, New Haven, will almost double its entering class in the fall of 1951 to help meet the increasing demand for nurses for military and civilian service. Future plans call for a first year class of about 80. The school is calling a special meeting on February 5 for the student counselors and deans of 28 colleges in New England, New York, New Jersey and Pennsylvania.

Portrait of Dr. Gold.—A portrait of Dr. James D. Gold, chairman of the building fund, was dedicated in the new headquarters of the State Medical Society in New Haven November 15. The conference room in the society has also been named the James D. Gold room. The portrait of Dr. Gold was a gift of the Fairfield County Medical Society, of which Dr. Gold has been president. He has been active for more than half a century in the medical affairs of Connecticut; he was at one time president of the state medical society and for seven years served as chairman of the board of trustees of the society's building fund.

DISTRICT OF COLUMBIA

The Hachmeister Lecture.—Dr. Carl F. Schmidt, professor of pharmacology of the University of Pennsylvania School of Medicine, Philadelphia, has been chosen as Georgetown University's Hachmeister Lecturer for 1951. He is author of numerous articles on respiratory reflexes, which will be the subject of his lecture January 18. He is a member of the National Academy of Sciences and president of the American Society of Pharmacology and Experimental Therapeutics. The Hachmeister Lecturership in Pharmacology was established in 1949 by a grant from the A. C. Hachmeister Corp., Pittsburgh, in honor of its founder and first president.

FLORIDA

Mental Health Society Formed.—This society was organized at Orlando November 11 by 32 delegates from community health organizations. Its purpose is to coordinate mental health work on a statewide basis. The society is a result of several years of intensive work by a mental health committee of the Florida State Conference of Social Work. Paul Penningroth, Ph.D., of St. Petersburg, was named the first president and was authorized to appoint a secretary. Other officers are Max Wise, dean of personnel, University of Florida, Gainsville, vice president, and Clifford Van Orsdel, Miami, treasurer.

Diabetes Seminar.—The date for this seminar, originally scheduled for January 25-26, has been changed to February 1-2 in Lakeland. Dr. Henry B. Mulholland, professor of medicine at the University of Virginia Department of Medicine, Charlottesville, Va., and Dr. Philip K. Bondy, department of medicine, Emory University School of Medicine, Atlanta, Ga., comprise the faculty. The seminar is presented by the department of medicine of the Graduate School of the University of Florida in cooperation with the Florida Medical Association, the Florida State Board of Health and the American Diabetes Association. Physicians throughout the state are urged to attend.

GEORGIA

Ophthalmology and Otolaryngology Meeting.—The Georgia Society of Ophthalmology and Otolaryngology will hold its annual meeting at the General Oglethorpe Hotel in Savannah, March 2-3. The registration fee is $20. Lecturers and their subjects are:

Albert D. Ruedemann, Detroit, Cataracts as a Medical Problem and Selection of the Type of Operation in Cataract Surgery.
Peter C. Kronfeld, Chicago, Diagnosis and Medical Treatment of the Glaucomas, and the Surgical Treatment of the Glaucomas.
William C. Owens, Baltimore, Surgical Treatment of Horizontal Muscle Deviations and Surgical Treatment of Vertical Deviations.
C. Stewart Nash, Rochester, N. Y., Functional Diseases of the Nose and Otolaryngological Mishaps.
Philip E. Meltzer, Boston, Practical Therapeutic Measures in Otologic Practice—Surgical, and the Conservation of Hearing in Chronic Suppurative Otitis Media.
Edwin N. Broyles, Baltimore, Tumors of the Larynx—Benign and Malignant and Summary of Otolaryngological Conditions That Require Expert Attention.

ILLINOIS

Why Study Medicine.—A survey of the freshmen class at the University of Illinois College of Medicine, Chicago, indicates that dedication to human welfare is a dominant motive driving students to study medicine. The results of the study, covering the 166 students accepted out of 544 applicants, are published in the January *Illinois Medical Journal*. They were compiled by Dr. Carroll C. L. Birch, associate professor of medicine at the university. Of the 166 freshmen, Dr. Birch found that 53 specifically listed altruistic, humanitarian motives for entering medicine, such as desire to help the less fortunate, to better the world, to conquer disease or to decrease suffering. Interest in science inspired 42 applicants. Another 27 had just always known that they wanted to be doctors. Admiration for the family doctor or for a physician relative moved 28. Ten were motivated by religion, with some recording a divine call to the life of the medical missionary. Six recorded scientific curiosity. Only 12 listed desire to make money, and only eight coveted the prestige of the physician.

Chicago

Research in Cerebral Palsy.—A new program of basic research in cerebral palsy was inaugurated January 10 by the University of Illinois College of Medicine. The Cerebral Palsy Association of Illinois has allocated $50,000 for a five year program of research. Primary consideration will be given the mechanisms that produce the symptoms known as cerebral palsy. The study will be undertaken by Dr. Seymour N. Stein and a team of investigators in the department of psychiatry, headed by Dr. Francis J. Gerty. There are some 550,000 persons in the United States alone known to have cerebral palsy. There are some 10,000 new congenital cases each year, while many thousands acquire it after birth.

University of Washington Honors Dr. Strauss.—The University of Washington has selected Dr. Alfred A. Strauss, senior attending surgeon at Michael Reese and Mount Sinai hospitals, as "Alumnus Summa Laude Dignatus" for 1951. He will receive an honorary scroll at commencement exercises next June. This award has been given each year since 1938 to an outstanding living graduate of the university. A university honor graduate in 1904 and a former football star, Dr. Strauss has been one of the university's most loyal alumni and one of the first to advocate a school of medicine for the university, a project he helped to promote for more than 15 years. Last year he established a Strauss Foundation Lectureship in the medical school. Dr. Strauss, a specialist in surgery of the colon and stomach, is now doing research on gastric cancer.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.

Clinical Conference in Ophthalmology.—The Chicago Ophthalmological Society will hold its third clinical conference at the Edgewater Beach Hotel February 15-17. Clinics will be held at various Chicago hospitals. Visiting speakers include: Dr. Harold G. Scheie, Philadelphia, "Goniotomy and Goniopuncture," and Dr. Robert J. Masters, Indianapolis, "Ocular Injuries." On Saturday there will be a symposium on recent advances in ocular therapy, for which Dr. Derrick Vail will serve as moderator. The annual Sanford R. Clifford Lecture will be delivered Saturday evening by Dr. Alan C. Woods, Baltimore, on "The Present Status of the Adrenocortical Hormone in Ophthalmology." The registration fee is $25.

LOUISIANA

Hospital News.—Rosary Clinic, the new five story, 100 bed annex at De Paul Sanitarium, New Orleans, was dedicated December 14. The 89 year old psychiatric hospital is owned by the Daughters of Charity of St. Vincent de Paul. The medical staff consists of 54 physicians, 28 of whom are neuropsychiatrists. Most of them are identified with the Louisiana State University and Tulane medical schools.

MASSACHUSETTS

Blood Processing Laboratory.—A new Blood Characterization and Preservation Laboratory was dedicated January 8 in Harvard University's Bussey Institution of Applied Biology at Forest Hills in Boston. The laboratory, under the direction of Dr. Edwin J. Cohn, is an emergency establishment for the development of new methods of use in the national blood program. A new Red Cross Blood Donor Center soon will be added to the Forest Hills group. Boston will thus have at Forest Hills a complete blood center. The research at Harvard and the development and "pilot plant" processing of blood under the sponsorship of Harvard University and the Massachusetts Department of Public Health are associated in the national blood program with the National Red Cross, the National Institutes of Health, the Atomic Energy Commission and other governmental agencies concerned with the preservation and processing of blood for medical use in national emergency.

The laboratory dedication ceremony included talks by various officials who are concerned with the national blood program. The need for preservation of the formed elements as well as of the plasma proteins of blood was discussed by Dr. Francis G. Blake, chairman of the Committee on Medical Sciences, Research and Development Board, U. S. Department of Defense, and by Dr. Shields Warren, director of the division of biology and medicine, U. S. Atomic Energy Commission. Dr. William H. Sebrell Jr., director of the National Institutes of Health, spoke on the role of the U. S. Public Health Service in the national blood program. Dr. Cohn reported on the present state of knowledge of optimal conditions for stockpiling of blood cells and plasma proteins.

MINNESOTA

Clarence M. Jackson Lecture.—Dr. Carl E. Badgley, in charge of orthopedic surgery, University of Michigan, Ann Arbor, will deliver the annual Clarence M. Jackson Lecture sponsored by the Phi Beta Pi Medical Fraternity at the University of Minnesota March 1 on "Fractures About the Hip—Early and Late Therapy." Dr. Badgley will also participate as a visiting faculty member in a continuation course on fractures and the surgery of trauma to be presented by the university at the Center for Continuation Study March 1-3.

MISSISSIPPI

Outbreak of Food Poisoning.—Dr. Archie L. Gray, Mississippi State Board of Health, has reported an outbreak of "food poisoning" on December 16 at a dinner party given by an industrial firm in a hotel in Jackson. Attending the dinner were 150 persons, of whom 44 were affected with sudden onset of severe cramping, diarrhea, vomiting, muscle pains and prostration. The incubation period ranged from one to 14 hours, with a median of 7½ hours. It was impossible to determine the exact cause or source of the outbreak. Sanitation of the premises and handling of food were excellent. Hotel employees who ate food remaining from the dinner were not ill.

NEW HAMPSHIRE

University Health Service.—Dr. John A. MacDonald, of New Waterford, Nova Scotia, has been appointed director of the student health service at the University of New Hampshire, Durham, succeeding Dr. Joel T. White, who resigned to become director of the Red Cross blood bank in Tennessee and Kentucky. Dr. MacDonald will be in charge of the university's Charles Harvey Hood House, an outpatient clinic and hospital, and will be responsible for the health of the 3,400 students. Assisting him on a part time basis will be Dr. S. Gerard Griffin of Portsmouth and Dr. William D. Crandall of Durham.

NEW YORK

Symposium on Drugs.—A symposium on newer drugs, a postgraduate lecture, will be given for members of the Suffolk County Medical Society January 31 at 10: 00 a. m. at Central Islip State Hospital in Central Islip. Dr. Alvan L. Barach, New York, will speak on "Advances in Treatment of the Lung with the Newer Drugs"; Dr. Joseph J. Bunim, New York, "Cortisone, ACTH and Other Steroids," and Hugo H. Schaefer, Ph.D., dean of the Brooklyn College of Pharmacy, "Prescription Writing." This symposium has been arranged by the Medical Society of the State of New York with the cooperation of the New York State Department of Health.

Blue Shield's Two Millionth Member.—The two millionth person to enrol in United Medical Service, New York's Blue Shield Plan, was honored at a dinner January 25 at the Hotel Biltmore, New York. About 400 persons, including representatives of local, state and national medical societies, Blue Shield and Blue Cross Plans and business organizations, attended. A feature of the occasion was the presentation of an achievement award to Dr. Charles G. Heyd, president of United Medical Service, on behalf of the nonprofit, voluntary "doctors' plan" by Dr. Howard Schriver, Cincinnati, president of the national Blue Shield Commission. Dr. Elmer L. Henderson, Louisville, Ky., President of the American Medical Association, delivered the main address, "A New Milestone in Prepaid Medical Care." Dr. Carlton E. Wertz, Brooklyn, president of the Medical Society of the State of New York, presided.

New York City

Dr. Barrows Named Dean.—Dr. David N. Barrows, director of gynecology and medical executive officer at the New York Polyclinic Medical School and Hospital, has been made dean of the institution as of January 1. Dr. Barrows also holds a position as clinical professor of gynecology and obstetrics at New York University College of Medicine.

Tuberculosis Meeting.—The annual conference of the New York Tuberculosis and Health Association will be held February 20 beginning at 9: 30 a. m. at the Hotel Statler, New York. The public is invited to attend this meeting at which various phases of tuberculosis prevention and control in New York will be discussed. The Tuberculosis Sanatorium Conference of Metropolitan New York will conduct the afternoon session on "Tuberculosis, the Public Health Hazard."

Old Pictures on Public Health.—The New York Academy of Medicine Library has on display pictures relating to public health in New York in the second half of the nineteenth century. Much of it is concerned with the "cholera and fever nests." The Board of Health was lampooned in 1865. The dread of cholera is depicted in a cut of the Statute of Liberty as a skeleton. Underneath is inscribed "New York—Leave all hope ye that enter" (1881). "The cholera invasion" of 1892 struck such terror that a mob prevented the landing of passengers from the ship *Normannia.* In a picture of 1881 the

commissioner of health is congratulated by an undertaker for doing nothing about the appalling condition of the streets. Many of the illustrations are from *Harper's Weekly, Frank Leslie's Illustrated Newspaper* and *Puck*. The exhibit is open to the public Monday through Saturday, 9 a. m. to 5 p. m. at 2 East 103 Street. The pictures will be on display for some months.

Orthopedic Patients Moved to Medical Center.—The New York Orthopaedic Dispensary and Hospital has moved from its old quarters at 402 East 59th Street to Columbia Presbyterian Medical Center at 168th Street and Broadway. The patients will have quarters on the fifth floor of Babies Hospital and at Presbyterian Hospital. The dispensary and hospital has been an official unit of the Columbia-Presbyterian Medical Center since 1945. It was founded in 1866 by Anna Roosevelt, sister of President Theodore Roosevelt. The move represents the closer integration of all medical services in an effort to provide as complete medical care as possible.

OHIO

Narcotic Violation.—Dr. Frank F. Ferris, 1003-4 Union Central Building, Cincinnati, pleaded guilty in the U. S. District Court at Cincinnati to an indictment charging violation of the Federal narcotic law, and on Dec. 4, 1950 was sentenced to three years' probation.

Grant for Poliomyelitis Research.—A March-of-Dimes grant of $88,400 will enable scientists at the Children's Hospital Research Foundation and the University of Cincinnati to continue search for an agent capable of protecting man against poliomyelitis. Directing the research is Dr. Albert B. Sabin, professor of research pediatrics at the university. Associated with him are Arnold H. Fieldsteel, Dr. Robert M. Chanock and other technical aides. Dr. Sabin revealed that primary attention will continue to be focused on the search for a chemical substance that will either prevent poliomyelitis infection or modify its serious paralyzing effects.

Veterans Physicians Society.—The Veterans Physicians Society of Greater Cincinnati was organized on Dec. 17, 1950. Its general purpose is to assist in the mobilization of all physicians for the best interest of the country. Immediate objectives were stated as follows: Active cooperation with the Cincinnati Academy of Medicine and its committees; in connection with reserves called to active duty, to see that they are not forgotten and that efforts are made to return them to practice as soon as possible and consistent with the national interest, to help maintain their practices and cover their patients while they are away and to maintain a central headquarters office for contact and inquiries concerning men in service; to assist in supplying all necessary medical manpower required for both military and civilian purposes; to suggest a review of the standards of medical requirements for all men accepted by the military services. The society will meet on the third Sunday of every month. About 200 physicians attended the organization meeting. Officers elected were Dr. Foster M. Williams, president; Dr. Robert S. Green, president-elect; Dr. William C. Ahlering, secretary, and Dr. Eugene H. Sterne, Jr., treasurer. Communications should be addressed to the secretary, Dr. William C. Ahlering, 116 William Howard Taft Road, Cincinnati.

SOUTH CAROLINA

Industrial Commission Schedule of Medical Fees.—The South Carolina Industrial Commission has adopted a schedule of medical and surgical fees which it will use as a guide in passing on all charges for medical care in workmen's compensation cases. The schedule was recommended by the South Carolina Medical Association after two years' study and conferences and is being sent to all doctors who practice regularly before the commission, to insurance companies and to companies which carry their own insurance. Previously the association has approved medical fees of more than $100, but now it will approve all fees, regardless of size.

TEXAS

Cardiovascular Research.—Friends of Mr. H. H. Weinert of Seguin, Texas, former regent of the University of Texas, have given additional grants of $7,500 for the H. H. Weinert Cardiovascular Research Fund. The total endowment of this fund now exceeds $25,000. It is used to support the research studies by Dr. George R. Herrmann, director of the Cardiovascular Research Laboratory at the University of Texas Medical Branch, Galveston.

Psychiatric Bulletin for the Family Physician.—The first issue of the *Psychiatric Bulletin*, published by the Medical Arts Publishing Foundation of Houston, has been distributed to the 7,000 physicians of Texas. The new quarterly is edited principally by faculty and staff members of institutions in the Texas Medical Center at Houston. The Texas State Department of Health has paid for a year's subscription for every physician in Texas. Russell W. Cumley, Ph.D., is executive editor; Dr. R. Lee Clark Jr., editor; Dr. Jack R. Ewalt, directing medical editor. A group of editorial consultants also approve all material published in the bulletin.

WASHINGTON

Home Management for Cardiac Housewives.—The Rehabilitation Committee of the Washington State Heart Association this year offered a course on home management for the cardiac housewife. A registered occupational therapist at the Washington State Heart Association office conducted the course, which was based on a booklet, "The Heart of the Home," prepared by the American Heart Association and the New York Heart Association. Physicians could refer patients to the course and receive a brief report by the occupational therapist. As the program expands, the association hopes to make the service available to all physicians of King County as a part of the community service program.

University Cancer Research.—The University of Washington Medical School, Seattle, is undertaking a long range cancer research project designed to aid in the early detection of cancer of the uterus. It is sponsored by an initial grant of $10,000 by the National Cancer Institute. Almost 350 patients have volunteered to provide a series of specimens at regular intervals during the next five to 10 years. None of the persons at present has evidence of the disease. It is hoped that if any of them should develop cancer in later years it would be possible to compare the cancerous specimens with previous ones and note the gradual degenerative changes. Dr. Russel R. de Alvarez, professor and executive officer of the department of obstetrics and gynecology, is directing the project.

WISCONSIN

Personal.—Dr. Robert F. Schilling was appointed assistant professor of medicine at the University of Wisconsin Medical School, effective January 1. Dr. Schilling, a former resident in medicine at the State of Wisconsin General Hospital, returns to the state after two years spent at the Thorndike Memorial Laboratory and Boston City Hospital.

Loevenhart Lecture.—On February 4 Phi Delta Epsilon of the University of Wisconsin Medical School will present the annual Loevenhart Lectureship at 8:00 p. m. in the auditorium, Service Memorial Institutes. Dr. Maxwell M. Wintrobe, chairman of the department of medicine of the University of Utah School of Medicine, Salt Lake City, will give the lecture.

Grants to University.—A gift of $10,000 given to the Marquette University School of Medicine, Milwaukee, by Kurtis R. Froedtert, president of the Froedtert Grain and Malting Company, Milwaukee, will be used to assist with the teaching of children's diseases to Marquette medical students affiliating at Milwaukee Children's Hospital. Simultaneous with the gift to Marquette, Froedtert also awarded contributions of $10,000 each to the Damon Runyon Cancer Fund and to the University of Wisconsin Medical School, Madison.

GENERAL

International Congress of the Domus Medica.—The International Congress of the Domus Medica will be held in March on the French Riviera. It will be followed by a tour through Italy and North Africa. Official receptions and receptions by physicians, families in the countries visited have been organized for this occasion (Medical Days of Friendship). Departure from New York may be made March 5 and the arrival in New York on April 12. Official languages of the congress are English and French. Detailed information may be obtained from Domus Medica, 37 rue Boissière, Paris (XVI) France.

Regional Conference.—The Middle Atlantic States Regional Conference, held at the Philadelphia County Medical Society, January 18, was devoted to civil defense. There was a discussion on procurement and assignment problems and civil defense problems reported by representatives from New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia and the District of Columbia. A report was made on the Chicago Disaster Rehearsal. Speakers outside the region included Mr. Thomas Hendricks, executive secretary of the American Medical Association Council on Medical Service, Chicago.

College of Physicians Regional Meeting.—The Delaware Regional Meeting of the American College of Physicians will be held in Wilmington on February 22 beginning at 9: 00 a. m. at the Nurses' Auditorium of Delaware Hospital. Members of the college and their guests from Eastern Pennsylvania, New Jersey and Maryland are also invited. Among the speakers will be Dr. Francis A. Harkins, Wilmington, on "Diagnostic Importance of Liver Biopsy." After the scientific sessions, a reception and dinner will be held at the DuPont Country Club. The address of the evening, "Medicine in the National Emergency," will be delivered by Dr. Maurice C. Pincoffs, Baltimore, president-elect of the American College of Physicians.

Red Cross Calls for More Blood Donors.—Marking the third anniversary of the national blood program, the American Red Cross announced January 12 that blood donations must be tripled during the coming year to meet demands of the military forces and civilian hospitals. "The Defense Establishment, alone, will need more than a million pints of blood by July 1, and we cannot yet estimate the requirements for civil defense," said E. Roland Harriman, Red Cross president. "We must also continue to meet the demands of the everyday ill in our civilian hospitals." The Red Cross was named official blood procurement agency for both the military forces and civil defense last August. Since then every request for whole blood for Korea has been met and a large plasma stockpiling project has been started for military use.

Runyon Fund's Grant for Mexican Cancer Research.—A $5,000 grant, the first such international gift made by the Damon Runyon Fund, was presented January 12 by United States Ambassador William O'Dwyer to a group of Mexican cancer research experts at a dinner in Mexico City inaugurating the first International Symposium on Steroids in Clinical and Experimental Practice. The grant goes to the Cancer Research Institute of the Hospital de Enfermedades de la Nutricion for research in the use of steroid drugs in the treatment of cervicouterine cancer. The institute was nominated to receive the grant by the Mexican Section of the Organizing Committee of the International Symposium. The research will be conducted by Drs. Guillermo Montano, Kuba Lichtinger, Edmundo Rojas, Manuel Maqueo, Francisco Gomez Mont and Juan José Paullado. A $10,000 gift to the same group was made by the Mexican hormone manufacturing firm Syntex, S. A. The Runyon Fund grant will be utilized for personnel. The Syntex gift will supply experimental steroid drugs.

New Alpha Epsilon Delta Chapters.—Alpha Epsilon Delta, national premedical honor society, announces the installation of the West Virginia Beta Chapter at Marshall College, Huntington, W. Va., on November 11 with the initiation of 15 premedical students and six members of the faculty, including J. Frank Bartlett, Ph.D., dean, college of arts and science. Ralph M. Edeburn, Ph.D., professor of zoology and premedical adviser, will serve as faculty adviser. Hugh E. Setterfield, Ph.D., of Ohio State University, national president of A. E. D., presided. The Utah Beta Chapter was established at the University of Utah, Salt Lake City, on November 18 with the initiation of 19 premedical students and eight members of the faculty, including Dr. Hyrum L. Marshall, dean of the college of medicine, and Lloyd E. Malm, Ph.D., professor and head of the department of chemistry. George Sayers, Ph.D., professor of pharmacology, will act as faculty adviser. Norman F. Witt, Ph.D., professor of chemistry, University of Colorado, Denver, and national treasurer, was the installing officer.

National Conference on Medical Service.—This annual conference is to be held in the Red Lacquer Room of the Palmer House, Chicago, on February 11. The program is as follows:

Norvin C. Kiefer, director, National Security Resources Board, Washington, The Doctor's Role in Civil Defense.

Howard A. Rusk, chairman, National Advisory Committee to the Selective Service System, Washington, D. C., and Col. Richard H. Eanes, chief medical officer, Selective Service System, Washington, D. C., Who's Next for Military Service.

Mr. E. H. O'Connor, managing director, Insurance Economics Society of America, Chicago, The Doctor's Case Against Compulsory Disability Insurance.

George F. Lull, Secretary, American Medical Association, Chicago, Twenty-Five Dollars Goes a Long Way.

Mr. Joe Norby, administrator, Columbia Hospital, Milwaukee, and Mr. Mac F. Cahal, secretary, American Academy of General Practice, Kansas City, Mo., Shall the Hospital Be the Office of the Physician?

Joseph S. Lawrence, director, Washington Office, American Medical Association, Washington, D. C., Capitol Comments.

Willard A. Wright, State Board of Medical Examiners of North Dakota, Williston, N. D., Training Program for Physicians from Unapproved Foreign Schools.

Mr. Leo E. Brown, executive secretary, Student American Medical Association, Chicago, Medical Students Get Their Own AMA.

The luncheon speaker will be Donald J. Cowling, Ph.D., president emeritus, Carleton College, Fairfield, Minn., who will speak on "Our American Heritage."

War Curtails Campaign Advertising.—The "Fight Tuberculosis" campaign, which has been carried on by the Advertising Council, Inc., for the National Tuberculosis Association, the U. S. Public Health Service and state and local health departments for three years, has been discontinued because of the international situation and the resultant demands. The council, a nonprofit organization, representing all phases of advertising dedicated to the public service, was established shortly after Pearl Harbor. Since November 1947 its facilities have been at the disposal of the tuberculosis campaign. Five car card allocations, each representing about 80,000 car card spaces, were given by the National Association of Transportation Advertising, Inc., and National Transitads, Inc., and their affiliated companies, in cooperation with the council. Dr. James E. Perkins, New York, managing director of the National Tuberculosis Association, has expressed the sincere gratitude of the association and its affiliates for the generous amount of time and space contributed to the cause of tuberculosis control through the Advertising Council campaign.

Lalor Foundation Changes Policy.—Lalor Foundation has discontinued its previous system of one year awards of postdoctoral fellowships. The present program of fellowship awards now comprises the following: The foundation is continuing to underwrite its series of annual awards for summer fellowships at the Marine Biological Laboratory, Woods Hole, Mass., for advanced research in physiological chemistry, biochemistry and biophysics; it is underwriting also predoctoral fellowships in the natural sciences with emphasis on their biochemical and biophysical aspects. These fellowships are established at four universities: University of Delaware, Harvard University, Johns Hopkins University and University of Pennsylvania. Disbursement of funds as well as selection of Lalor Foundation fellows is in the hands of an administering committee within each university. The funds available will permit the yearly appointment of about seven Lalor Research Fellows for summer work at the Marine Biological Laboratory and a yearly total of about 10 to 12 predoctoral fellows at the other institutions named. Inquiries respecting Lalor fellowships at the Marine Biological Laboratory should be addressed to the director, Dr. Philip B. Armstrong, at the

laboratory; information respecting Lalor predoctoral fellowships at the other institutions should be addressed to the chairman of the department concerned.

Communicable Diseases in 1950.—During 1950 the incidence of communicable diseases reported weekly by states was generally favorable in comparison with 1949 or the five year (1945-1949) median, the U. S. Public Health Service reports. Three diseases for which intensive preventive or public health measures are available and are widely used, namely diphtheria, smallpox and the typhoid-paratyphoid group, were reported in smaller numbers in 1950 as compared with 1949 and the five year median. However, whooping cough, a disease against which immunization is extensively used, was reported in larger numbers. The totals for cases of diphtheria (6,035), smallpox (34) and typhoid and paratyphoid (3,424) for the 52 weeks ended Dec. 30, 1950, were gratifyingly low when compared with some previous years. In 1930 a total of 66,576 cases of diphtheria, 48,907 cases of smallpox and 27,201 cases of typhoid and paratyphoid was reported. In 1940 the totals were 15,536, 2,795 and 9,809, respectively, for the three diseases. Whooping cough has shown no comparable decrease in numbers, 116,914 cases being reported in 1930, 183,866 in 1940, and 118,797 in 52 weeks of 1950. Measles, poliomyelitis, Rocky Mountain spotted fever, scarlet fever and tularemia were reported in few numbers in 1950 compared with 1949. The total number of influenza cases in 1950 was greater than in 1949. Infectious encephalitis, meningococcic meningitis, pneumonia and rabies in animals were reported in slightly greater numbers in 1950 as compared with 1949.

Vitamin Foundation Research Grants.—Eight new grants for research in nutrition have been announced by Dr. E. Gifford Upjohn, president of the National Vitamin Foundation. The new grants, which became effective on January 1 and total $60,700, are as follows: Dr. Sophie D. Aberle, University of New Mexico, Albuquerque, $17,500 for study of the effect of an improved maternal and infant diet on infant mortality rate; Bacon F. Chow, Ph.D., Johns Hopkins University, School of Public Health and Hygiene, Baltimore, $5,000 for the study of vitamin B_{12} as a growth factor in man; Earle W. Crampton, Ph.D., McGill University, MacDonald College, Quebec, Canada, $1,500 for the study of the possible adjuvant action of rutin on ascorbic acid utilization by the guinea pig; Dr. Benjamin M. Kagan, Michael Reese Hospital, Chicago, $7,500 for the study of vitamin A metabolism in man in health and disease; Dr. Richard W. Luecke, Michigan State College, East Lansing, $3,000 for studies of the effects of low intakes of nicotinic acid, pantothenic acid and riboflavin during pregnancy; O. Neal Miller, University of Texas, Medical Branch, Galveston; $10,700 for the study of a spruelike syndrome; Dr. Richard W. Vilter, University of Cincinnati College of Medicine, $6,000 for the study of metabolic defects induced by desoxypyridoxine, a pyridoxine antagonist, and Dr. Heinrich Waelsch, New York State Psychiatric Institute, New York City, $9,500 for the study of the biologic function of glutamine.

Rehabilitation of the Blind.—Announcement of a joint venture for rehabilitation of physically handicapped children was made December 27 by the Association for the Aid of Crippled Children and the New York University-Bellevue Medical Center. The plan will go into effect in January in conjunction with the opening of the new building for the Medical Center's Institute of Physical Medicine and Rehabilitation. The association will provide underwriting on an annual basis, which may total as high as $115,000 during the first year. The physician directly in charge of the new children's unit will be Dr. George G. Deaver, professor of clinical rehabilitation, New York University College of Medicine. In addition to the full facilities of the institute, children in the new demonstration unit will have special pediatric, psychiatric, psychological, social service, physical therapy, occupational therapy, speech therapy, special education, recreation and nursing services. Emphasis will be on parent training and consultation, in order that home treatment can be utilized following the patient's stay at the institute. In addition, the facilities of the new unit will also be utilized for undergraduate and postgraduate training of physicians, as well as for training of physical therapists, occupational therapists and vocational councilors. The Association for the Aid of Crippled Children is also supplying the institute with a full time nurse-therapist instructor, who will teach in the specialized rehabilitation courses and act as a staff liaison with the association. At present the institute is the nation's largest training center in physical medicine and rehabilitation. During the past three years, it has had graduate students not only from all parts of the United States but from Norway, Finland, Austria, France, England, Israel, Belgium, Brazil, China, Japan, Greece, Czechoslovakia and Cuba.

The United Defense Fund.—The United Defense Fund, Inc., a national federation, has been organized for mobilization of community resources to finance national health and welfare services made necessary by the defense effort. Somewhat similar to the National War Fund of World War II, it has now presented its budget to all the Community Chests of the country, requesting that they support its program for 1951. The organization of the United Defense Fund, Inc., was preceded by a series of conferences which included the national agencies and groups concerned and representatives of Community Chests. A Planning and Advisory Committee on National Emergency Services was jointly appointed by Community Chests and Councils of America, Inc., and the National Social Welfare Assembly, Inc. E. A. Roberts, president of the Fidelity Mutual Life Insurance Company, Philadelphia, was elected president at the first meeting of the Fund November 28 in New York. Vice presidents elected were Charles Aaron, attorney, Chicago; Irving Abramson, chairman, National CIO Community Services Committee, New York; William Collins, regional director, American Federation of Labor, New York; Francis P. Matthews, Secretary of the Navy, Washington, D. C.; Meyer L. Prentis, treasurer, General Motors Corporation, Detroit, and Channing H. Tobias, director, Phelps Stokes Fund, New York. Charles H. Watts, chairman of the board, Beneficial Management Corporation, Newark, N. J., was elected treasurer. William H. Bulkeley, vice president of Kellogg and Bulkeley, Lithographic Division, Connecticut Printers Incorporated, Hartford, Conn., was elected secretary.

Services to receive support from the United Defense Fund, Inc., fall into two groups. The first group is concerned with services to the armed forces and will be conducted by the American Social Hygiene Association, Associated Services for the Armed Forces (which includes the Jewish Welfare Board, National Catholic Community Service and YMCA); National Recreation Association, National Travelers Aid Association and YWCA. The second group will provide services to communities congested by the national defense effort. These services will be conducted by the Child Welfare League of America, National Organization for Public Health Nursing, National Federation of Settlements and Neighborhood Centers, National Urban League, National Catholic Community Service, National Recreation Association, YWCA and the National Travelers Aid Association. The United Defense Fund, Inc., will raise funds through the "united campaign" approach wherever possible and will seek support from the nation's Community Chests on a share and share alike basis, community quotas being based on the recommendations of the National Quota Committee. Funds will also be sought in New York. The national campaign goal for the United Defense Fund, Inc., as approved by the National Budget Committee for services to be given in 1951, is $7,399,329. Community Chests throughout the country will be asked to provide $6,058,101 of this goal, with the remaining $1,341,228 to be secured from New York City and other non-Chest sources.

LATIN AMERICA

Honored for Tuberculosis Work.—Dr. Luis Antonio Perez has been awarded a medal of honor by the government of Ecuador for his work of several years against tuberculosis in Ecuador. Dr. Perez is an Argentine physician who works for the League Against Tuberculosis in Ecuador as its technical adviser. He has organized several centers for the control of tuberculosis in Ecuador, as well as several dispensaries and clinics.

Congress of Physical Medicine in March.—The third meeting of the Latin American Congress of Physical Medicine will be held the week of March 21 through the courtesy of the government of the Dominican Republic at the oldest university in the Western Hemisphere, in the capitol city of Cindad Trujillo. This meeting will be limited to 100 doctors, and any doctor who so desires may present a paper covering any field of medicine. Information as well as applications for attendance and presentation of papers may be obtained from Cassius Lopez de Victoria, M.D., Executive Director, 176 East 71st Street, New York; telephone, Butterfield 8-6241.

FOREIGN

Smallpox in Britain.—The Associated Press reported from London January 14 that 28 cases of smallpox had been reported in southern England, with eight deaths as of January 13.

Influenza in England.—The present serious epidemic of influenza in England is believed to have originated in Norway in the summer of 1950 and to have reached England in the fall, according to official reports received by the U. S. Public Health Service. A small flurry of respiratory disease has also been reported in Germany, but the type of disease is not yet identified. Seven hundred cases of an influenza-like disease has been reported in Godthaab, on the coast of Greenland. Few fatalities have been reported. Isolation of influenza virus A′ from cases occurring in Sweden and Denmark in November and December 1950 was reported concurrently by the Influenza Information Center at the National Institutes of Health. Announcement of the identification was forwarded here from the London, England, Influenza Information Center. The London Center also reported that influenza occurring at present in north England has been identified serologically as type A, but no virus isolations have been made. According to the report, there is a low incidence of influenza in south England at present. In its Communicable Disease Summary for the week ended January 6, the National Office of Vital Statistics reports that, at the time the summary was prepared, there was no direct evidence of epidemic influenza in the United States. The suggestion is made that state and local health officers be alert to the possibility of the introduction of the infection in this country and that the existence of outbreaks of influenza-like infections be reported promptly to the National Office of Vital Statistics.

CORRECTION

Battle Against Blindness.—In the article by this title in THE JOURNAL, Jan. 6, 1951, page 28, right hand column, paragraph two, line three should read "needed for progress in prevention. Among children."

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. Feb. 13-15, April 16-17 (Part II only), June 18-20, Sept. 5-7. Ex. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* July 20. Given simultaneously in several cities in the United States. Final date for filing application was Jan. 20. *Oral.* Coronado, Calif., April 4-7 and Memphis, Oct. 14-17. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various Centers, Feb. 8. *Oral.* New York, April 6-8. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21, N. Y.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 1951. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Part I, Written Examination and Review of Case Histories. Various locations. Feb. 2, 1951. Final date for filing applications was Nov. 5, 1950. *Oral.* New York City, May 10-16. Final date for filing application is Feb. 2. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* San Francisco, March 11-15; New York, May 31-June 5; Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Richmond, Va., May 1-5. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: *Written and Oral. Pathological Anatomy and Clinical Pathology.* Cleveland, April 23-24. Final date for filing application is March 15. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

AMERICAN BOARD OF PEDIATRICS: *Oral.* New Orleans, March 2-4. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Parts I and II.* Philadelphia, June 16-17. Final date for filing application is March 31. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral and Written.* Chicago, June 4-6. Final date for filing application is March 15. Sec., Dr. Bradford Cannon, 330 Dartmouth St., Boston.

AMERICAN BOARD OF PROCTOLOGY: *Part I in Anorectal Surgery and Proctology.* Kansas City, Minneapolis, Philadelphia and San Francisco, May 12. Sec.-Gen., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 11-12. Final date for filing application is March 1. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Atlantic City, June 5-9. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various centers, March 1951. Final date for filing applications was Dec. 1, 1950. *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

BOARD OF THORACIC SURGERY: *Written.* Various Centers, Feb. 16. Final date for filing application is Feb. 1. *Oral.* New York City, April 19. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 10-14, 1951. Final date for filing applications was Sept. 1, 1950. Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg., Minneapolis 15.

MEETINGS

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Atlanta Biltmore Hotel, Atlanta, Ga., Feb. 26-28. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE, Palmer House, Chicago, Feb. 12-13. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

NATIONAL CONFERENCE ON RURAL HEALTH, Peabody Hotel, Memphis, Tenn., Feb. 23-24. Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

AMERICAN ACADEMY OF ALLERGY, Hotel Statler, New York, Feb. 5-7. Dr. Walter S. Burrage, 208 E. Wisconsin Ave., Milwaukee 2, Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, San Francisco, March 19-22. Mr. Mac F. Cahal, 406 W. 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Drake Hotel, Chicago, March 1-3. Prof. Ralph F. Turner, Michigan State College Dept. of Police Administration, East Lansing, Mich., Secretary.

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, Palmer House, Chicago, Jan. 27-Feb. 1. Dr. Harold B. Boyd, 122 S. Michigan Ave., Chicago 3, Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Detroit, March 21-23. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Edgewater Beach Hotel, Chicago, Feb. 11-14. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

ASSOCIATED STATE POSTGRADUATE COMMITTEES OF STATE MEDICAL SOCIETIES, Palmer House, Chicago, Feb. 10-11. Dr. Charles W. Smith, 230 State St., Harrisburg, Pa., Secretary.

ATLANTA GRADUATE MEDICAL ASSEMBLY, Municipal Auditorium, Atlanta, Ga., Feb. 5-7. Mrs. Stewart R. Roberts, 768 Juniper St. N.E., Atlanta, Executive Secretary.

CENTRAL SURGICAL ASSOCIATION, Chicago, Feb. 22-24. Dr. James T. Priestley, Mayo Clinic, Rochester, Minn., Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 6-9. Dr. Walter C. Bornemeier, 30 N. Michigan Blvd., Chicago 2, Secretary.

CONFERENCE ON CHRONIC DISEASE—PREVENTIVE ASPECTS, Edgewater Beach Hotel, Chicago, March 12-14. Dr. Morton L. Levin, 535 N. Dearborn St., Chicago, Director.

MICHIGAN POSTGRADUATE CLINICAL INSTITUTE, Book-Cadillac Hotel, Detroit, March 11-13. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Secretary.

NATIONAL CONFERENCE ON MEDICAL SERVICE, Palmer House, Chicago, Feb. 11. Dr. R. E. Fitzgerald, 2218 N. Third St., Milwaukee 12, Secretary.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY, Municipal Auditorium, New Orleans, March 5-8. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans 12, Secretary.

SOUTH CENTRAL BRANCH, AMERICAN UROLOGICAL ASSOCIATION, Hotel Adolphus, Dallas, Jan. 29-Feb. 2. Dr. Rex E. Van Duzen, 721 Medical Arts Bldg., Dallas, Chairman.

SOUTHEASTERN SECTION, AMERICAN UROLOGICAL ASSOCIATION, Peabody Hotel, Memphis, Tenn., March 7-10. Dr. Russell B. Carson, Sweet Bldg., Fort Lauderdale, Fla., Secretary.

DEATHS

Dickinson, Robert Latou ⊕ New York; born in Jersey City, N. J., Feb. 21, 1861; Long Island College Hospital, Brooklyn, 1882; formerly served in the department of obstetrics and gynecology at his alma mater; assistant chief of the medical section of the National Council of Defense during World War I, and also served with the rank of lieutenant colonel as medical adviser on the general staff; in 1919 and 1926 headed missions to China and the Near East for the U. S. Public Health Service; life fellow and past president of the American Gynecological Society; past president of the New York Obstetrical Society and the American Gynecological Travel Club; since 1946 president of the Euthanasia Society of America; founder and was secretary of the National Committee on Maternal Health, 1923 to 1937, when he became honorary chairman; member of the American Association of Marriage Counsellors, American Society for the Study of Sterility, National Sculpture Society, the Authors League of America, the American Geographical Society, the New York Academy of Medicine, and British, Chicago and Brooklyn Gynecological societies; fellow and director of the American College of Surgeons; since 1939 senior vice president of the Planned Parenthood Federation of America; in 1944 received the first Alumni Achievement Award at the Long Island College of Medicine in Brooklyn; in 1946 received the Albert and Mary Lasker Foundation Award for having pioneered in fundamental research in the medical aspects of human fertility and its control; formerly on the staff of the Brooklyn Hospital and the Methodist Episcopal Hospital; specialist certified by the American Board of Obstetrics and Gynecology; author of "Human Sex Anatomy" and co-author of "Single Woman," "Techniques of Conception Control," "Thousand Marriages" and "Control of Conception"; joint author of "New York Walk Book"; art editor of the "American Textbook of Obstetrics for Practitioners and Students" (1895); on retirement from active medical practice, worked with Abram Belskie, a sculptor, and developed medical teaching aids in plaster and rubber depicting in life size sculptures the development of a baby from the moment of fertilization to the moment of birth; these sculptures, one of the most popular exhibits at the New York World's Fair, in 1941 were made into a medical teaching book, the "Birth Atlas," which is used in the medical and nursing schools and parents' classes in many countries of the world; copies of these sculptures are now on exhibit in the New York Museum of Natural History, the Field Museum in Chicago, the Cleveland Health Museum, the Dallas Health Museum and in a number of foreign countries; died in Amherst, Mass., November 29, aged 89, of pleurisy.

Stillman, Ralph Griffiths ⊕ New York; born in New York Feb. 21, 1882; Columbia University College of Physicians and Surgeons, New York, 1907; assistant professor of medicine (clinical pathology) at Cornell University Medical College; specialist certified by the American Board of Pathology; member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists, of which he had been vice president; fellow of the College of American Pathologists; served on the Board of Registry of Medical Technologists; major in the medical corps of the U. S. Army during World War I; for many years on the staff of New York Hospital; consulting physician to the Rahway (N. J.) Memorial Hospital; died in Kent, Conn., November 17, aged 68, of carcinoma of the lungs.

Beals, John Alfred ⊕ Jacksonville, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1919; specialist certified by the American Board of Radiology; past treasurer and past president of the Duval County Medical Society, past secretary, vice president and president of the Florida Radiological Society; member of the Radiological Society of North America; councilor and fellow of the American College of Radiology and member of its board of chancellors; member of the executive staff of the Duval Medical Center; radiologist to St. Luke's Hospital, where he died November 6, aged 60, of bronchogenic carcinoma of the lung.

Kline, Harold Glenn ⊕ Syracuse, N. Y.; born in Burlington, Pa., Aug. 24, 1877; Syracuse University College of Medicine, 1902; formerly on the faculty of his alma mater; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolarngology; fellow of the American College of Surgeons; during World War II served as a member of the Syracuse Induction Board; affiliated with Syracuse Memorial Hospital, St. Mary's Maternity Hospital and Children's Home, Syracuse Free Dispensary and St. Joseph's Hospital, where he died November 15, aged 73.

Reed, Robert Jeffrey ⊕ Wheeling, W. Va.; Bellevue Hospital Medical College, New York, 1884; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; past president of the West Virginia State Medical Association and Ohio County Medical Society; at one time health officer of Wheeling and for many years member of the board of education; affiliated with Ohio Valley General Hospital; in 1941 awarded an honorary degree of doctor of science by Washington and Jefferson College, Washington, Pa.; died November 27, aged 91, of bronchopneumonia.

Bellis, Horace Doolittle ⊕ Trenton, N. J.; Yale University School of Medicine, New Haven, 1907; served overseas during World War I; fellow of the American College of Surgeons; for many years consulting surgeon at the Orthopedic Hospital and Dispensary and the F. W. Donnelly Memorial Hospital, attending surgeon at New Jersey State Village for Epileptics in Skillman and at St. Francis Hospital; formerly member of the board of education and board of directors of the Free Public Library; died November 4, aged 72, of carcinoma of the pancreas.

Anderson, Parkey Howard ⊕ Ozark, Mo.; St. Louis University School of Medicine, 1904; an Associate Fellow of the American Medical Association; member of the Oklahoma State Medical Association; served during World War II; died November 12, aged 71, of carcinoma of the left lung.

Anthony, Frank H., Fort Worth, Texas; the Hahnemann Medical College and Hospital, Chicago, 1893; member of the American Medical Association; died November 4, aged 85, of probable cerebrovascular accident.

Baker, Jacob S., ⊕ Thiells, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1914; member of the American Association of Mental Deficiency; affiliated with Letchworth Village; died November 3, aged 62, of heart disease.

Bamford, Thomas Edwin, Syracuse, N. Y.; University of the City of New York Medical Department, New York, 1889; member of the American Psychiatric Association; elected delegate to the Pan-American Congress at Havana, Cuba and as the state's representative to the International Medical Congress in Paris; president of the staff of the Crouse-Irving Hospital; died November 10, aged 83, of coronary thrombosis.

Bartol, John Washburn ⊕ Boston; Harvard Medical School, Boston, 1891; past president of the Massachusetts Medical Society, Boston Medical Library and Boston Health League; formerly on the faculty of his alma mater; at one time member of the state board of health; served during World War I; chairman of the board of Simmons College; affiliated with Boston City Hospital; died November 15, aged 86, of heart failure.

⊕ Indicates Fellow of the American Medical Association.

Buckelew, Hollis Harold ⊕ Rogers, Ark.; University of Arkansas School of Medicine, Little Rock, 1939; served during World War II; on the staff of the Rogers Memorial Hospital, where he died November 6, aged 42, of coronary occlusion with hypertension.

Chapman, Charles Hickerson ⊕ Andalusia, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1909; member of the Southeastern Surgical Congress; served with the British Army during World War I; affiliated with Covington Memorial Hospital; died in Apalachicola, Fla., November 16, aged 65, of coronary thrombosis.

Crume, William Robert, Gratis, Ohio; Miami Medical College, Cincinnati, 1907; affiliated with Miami Valley Hospital in Dayton and the Middletown (Ohio) Hospital; died November 2, aged 67, of cerebral hemorrhage and heart disease.

Dubois, Willard Cecil, Santa Ana, Calif.; Denver and Gross College of Medicine, 1910; died in West Orange, November 16, aged 68, of acute anterior myocardial infarction.

Dunckel, Walter Adams ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1890; formerly on the faculty of Cornell University Medical College; during World War I a member of the medical advisory board for selective service; consultant at the Bronx Eye and Ear Infirmary and on the staff of St. Francis Hospital; died November 18, aged 81, of cerebral thrombosis.

Freeman, Samuel Flavius ⊕ Springfield, Mo.; American Medical College, St. Louis, 1909; served as president of the Greene County Medical Society; member and twice president of the Chamber of Commerce; president of the board of directors of Springfield Baptist Hospital, where he died November 1, aged 67, of pneumonia.

Fuller, George Ernest, Lomita, Calif.; Northwestern University Medical School, Chicago, 1898; died in Elmira, N. Y., November 6, aged 78, of cirrhosis of the liver.

Funk, Zalmon Edgar ⊕ Santa Rosa, N. M.; Rush Medical College, Chicago, 1882; an Associate Fellow of the American Medical Association; retired surgeon for the Southern Pacific Railway and for Guadalupe County; died in the Tucumcari (N. M.) Hospital November 2, aged 95, of coronary thrombosis.

Gage, John Gray, Arcadia, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1908; fellow of the American College of Physicians; formerly on the staff of City Hospital in Akron, Ohio; died November 18, aged 68.

Godard, Robert Fain ⊕ Quincy, Fla.; University of Georgia Medical Department, Augusta, 1900; past president of Second District Medical Society; past chief of staff of Florida State Hospital, Chattahoochee; co-founder of Gadsden County Hospital, where he died November 3, aged 74, of carcinoma of the liver.

Graham, John Alfred ⊕ Chicago; Rush Medical College, Chicago, 1902; fellow of the American College of Surgeons; chief surgeon emeritus and member emeritus of the board of trustees of Henrotin Hospital; on the staff of the Children's Memorial Hospital; surgeon, Illinois Central Railroad; died November 19, aged 70, of cardiac asthma.

Graves, Charles Herman, Denver; Chicago Medical College, 1889; died November 3, aged 85.

Griffith, James Barton, Crawfordsville, Ind.; Medical College of Indiana, Indianapolis, 1899; member of the American Medical Association; served as city and county health officer and county coroner; affiliated with Montgomery County Culver Union Hospital; died November 6, aged 77, of coronary occlusion.

Hall, Grover Cleveland, Kansas City, Mo.; University Medical College of Kansas City, Mo., 1907; specialist certified by the American Board of Otolaryngology; for many years practiced in Plainview, Texas, where he was affiliated with the Plainview Sanitarium and Clinic; died November 8, aged 65.

Harlin, Robert Johnson, Los Angeles; University Medical College of Kansas City, Mo., 1903; member of the American Medical Association; died October 29, aged 72, of arteriosclerotic heart disease and diabetes mellitus.

Hedges, Robert Williams ⊕ New York; Cornell University Medical College, New York, 1935; member of the American Medical Association; served during World War II; affiliated with Woman's and Roosevelt hospitals; found dead November 16, aged 42.

Janifer, Clarence Sumner ⊕ Newark, N. J.; New York Homeopathic Medical College and Flower Hospital, New York, 1915; served overseas during World War I and was awarded the Croix de Guerre; for many years affiliated with the city health department; on the staff of City Hospital, where he died November 13, aged 64, of carcinoma of the prostate.

Jend, Gustav Adolph, Cleveland; Pulte Medical College, Homeopathic, Cincinnati, 1897; on the staff of the Huron Road Hospital; died October 31, aged 78.

Kibbe, Pressley Aloysius ⊕ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1912; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; served during World War I; head of the department of radiology at Hotel Dieu, where he died recently, aged 59, of arteriosclerotic heart disease.

Kidd, Oliver Russell, Paducah, Ky.; University of Louisville (Ky.) Medical Department, 1898; past president of the McCracken County Medical Society; died in Baptist Memorial Hospital, Memphis, Tenn., November 14, aged 76, of cerebral hemorrhage.

Kieffer, Ferdinand Leo ⊕ Covington, Ky.; University of Louisville Medical Department, 1904; on the staff of St. Elizabeth Hospital, where he died November 6, aged 67, of cerebral hemorrhage, diabetes mellitus and coronary heart disease.

Kindall, Lloyd Elmer ⊕ Oakland, Calif.; University of Colorado School of Medicine, Denver, 1913; specialist certified by the American Board of Urology; member of the American Urological Association; past president of the Alameda County Medical Association; served during World War I; on the staffs of Alameda County Hospital and the Samuel Merritt Hospital, where he died November 16, aged 60.

Louy, Charles, Toledo, Ohio; Toledo Medical College, 1897; served during World War I; affiliated with St. Vincent's Hospital; died October 21, aged 81, of cerebral hemorrhage.

Lynn, Walter Leonard ⊕ Brooklyn; Jefferson Medical College of Philadelphia, 1916; associate clinical professor of surgery at the New York Medical College, Flower and Fifth Avenue Hospitals in New York; fellow of the American College of Surgeons; on the staffs of the Bushwick and Lutheran hospitals in Brooklyn, Queens General Hospital in Jamaica and consultant in surgery, Rockaway Beach (N. Y.) Hospital; a trustee of the Queensborough Public Library; died in the Kew Gardens (N. Y.) General Hospital November 11, aged 58.

McKinney, James Robert, Chicago; Chicago College of Medicine and Surgery, 1912; died in Evangelical Hospital November 19, aged 76, of cerebral hemorrhage and arteriosclerosis.

Morgan, Earl Eduard ⊕ Sioux City, Iowa; State University of Iowa College of Medicine, Iowa City, 1920; member of the American Association of Industrial Physicians and Surgeons; for many years company physician for Armour & Company; on the staff of St. Joseph Mercy Hospital; died in Iowa City November 18, aged 57, of acute myocardial infarction and pernicious anemia.

Munro, Catherine Nisbet, Columbia, S. C.; Woman's Medical College of Pennsylvania, Philadelphia, 1899; member of the American Medical Association and the American Psychiatric Association; at one time physician at Winthrop College in Rock Hill; affiliated with the South Carolina State Hospital from 1919 to 1945; died November 7, aged 77, of arteriosclerosis.

GOVERNMENT SERVICES

ARMY

Woman Doctors Report for Duty.—The first two women physicians to volunteer and be accepted for service with the Army Medical Corps since the end of World War II have reported for duty. These medical officers, both of whom will serve in the grade of major, are Dr. Ruth E. Church, of Walworth, Wis., and Dr. Theresa T. Woo, of Washington, D. C. They have been assigned to the Preventive Medicine Division of the Office of the Surgeon General. Major Woo served in the Army for two years during World War II; Major Church has no previous military service. A specialist in public health and preventive medicine, Major Church was employed by the Illinois Department of Public Health, at the Savanna District Office, prior to reporting for active duty. She has also a master's degree in public health from Columbia University, New York, and is a diplomate of the American Board of Preventive Medicine and Public Health. Major Woo, a graduate of the University of Michigan Medical School, has done graduate work at Harvard Medical School and at Children's Medical Center in Boston. She was employed by the District of Columbia Department of Health before reporting to the Office of the Surgeon General.

Authorization for women to serve as doctors in the Army was reestablished by the Surgeon General last August, after termination, in 1947, of the law that authorized the commissioning of women doctors. In World War II, 72 women physicians served in the Army, 26 of them having overseas assignments. As officers on active duty, women physicians appointed in the Reserve will be given the same opportunities for clinical practice and advancement that are now available to male officers in comparable grades. The pay, allowances and retirement benefits that accrue to male officers apply to women medical reservists. Women physicians and dentists are eligible for service in every type of military medical facility with the exception of forward medical installations in combat zones.

Ten Openings Abroad for Public Health Doctors.—The Civilian Personnel Branch of the Army Surgeon General's Office announces vacancies for one medical officer (director of Public Health and Welfare) in Okinawa and nine public health officers in Japan. All these positions have to do with the care of civilian population. Applicants must be Doctors of Medicine with public health and welfare experience. There is no age limit. The opening in Okinawa calls for a GS rating 15 and pays $10,000 per year plus 25 per cent post differential, a total of $12,500. The openings in Japan call for a GS rating 13 and pay $7,600 per year, plus free quarters, including furniture and maid service. Doctors wishing to make application for these positions should write to Civilian Personnel Branch, Army Surgeon General's Office, Main Navy Building, Washington 25, D. C.

Personals.—Dr. Richard Ford, department of medicine, Harvard Medical School, Boston, lectured on "Medicolegal Investigation," December 7, at the Armed Forces Institute of Pathology, Washington, D. C.

Dr. Paul D. White, clinical professor of medicine at Harvard, lectured on coronary heart disease at the monthly medical meeting of the Army Surgeon General at the Army Medical Center, Washington, D. C., November 30.

NAVY

Course on Radioactive Isotopes.—The Bureau of Medicine and Surgery announces a five day course of instruction in medical aspects of special weapons and radioactive isotopes at the Naval Medical School, Bethesda, Md., February 12-17. This course will present problems likely to be confronted and technics to be employed by medical and dental officers in the field of radioactivity. It is primarily for inactive Naval Reserve medical and dental officers; however, a limited number of officers of the medical department of the Navy on active duty may be given "authorization orders" (no expense to the government). Inactive Reserve officers residing in the 1st, 3d, 4th, 5th, 6th, 8th or 9th naval districts or the Potomac River Naval Command who desire to attend this course should submit their request to the commandant of their home naval district at the earliest practicable date.

Army to Return Navy Doctors.—The Navy has announced that the first 100 Navy medical officers from a group of 570 now on loan to the Army will be issued orders in the near future to return to duty with the Navy. It is expected that they will have reported back by early February. The remaining 470 will be ordered back in monthly increments. The medical officers were ordered to the Army several months ago, by directive of the Secretary of Defense, to alleviate the shortage of doctors in the Army medical service.

Conference on Industrial Medicine.—The third annual Navy Conference on Industrial Medicine and Hygiene will be held April 21-28, in Atlantic City, in conjunction with the American Association of Industrial Physicians and Surgeons, the American Conference of Governmental Industrial Hygienists, American Industrial Hygiene Association, American Association of Industrial Dentists and American Association of Industrial Nurses. Five special sessions are planned for personnel of the Medical Department of the Navy who are engaged in industrial health programs. One of the objectives of the conference is to insure that the Navy industrial health program is conducted in the light of modern concepts and knowledge accumulating in the rapidly developing industrial health field.

PUBLIC HEALTH SERVICE

Report on Cancer in Atlanta.—The first in a new series of reports on cancer morbidity in 10 metropolitan areas in the United States has been issued by the Public Health Service. The new series is based on data collected by the National Cancer Institute 10 years after the original surveys were made in these cities, during the period 1937-1939. This first report (Cancer Illness Among Residents in Atlanta, Georgia) is by S. J. Cutler. The survey shows a total of 3,112 cases of cancer among residents of the city in 1947; in 1,705 the disease was newly diagnosed during the year and in the others the diagnosis was made earlier but the patients were still under treatment or observation. There was an estimated minimum of 850 Atlanta residents with undiagnosed cancer. There was an increase in the number of reported cases of cancer from 214 per 100,000 population in 1937 to 237 cases in 1947. The author of the report believes this increase is due to an aging population and improved reporting, case finding and diagnosis.

Some data suggest that cancer patients in Atlanta are getting better medical care. In 1947, there was hospitalization in 72 per cent of reported cancer cases as compared with 64 per cent in 1937. Sixty-five per cent of diagnoses of cancer were confirmed microscopically in 1947 as compared with 52 per cent in 1937. The proportion of cancer patients being seen for a periodic check-up was about one in five, the same proportion shown in the first survey.

Data on cancer diagnosis showed that half of all lesions were diagnosed in the localized stage, but if skin cancers are excluded, the proportion of lesions diagnosed in a localized stage is reduced to one third. The proportion of skin cancer was high among the white population and commonest in men. The stage at which cancer was diagnosed had a striking relation to the survival rate. Ninety-three per cent of patients with localized cancer survived 12 months, but the survival rate was 64 per cent of those with regional involvement.

FOREIGN LETTERS

LONDON

George Bernard Shaw.—The passing of Bernard Shaw provoked short articles in both the *British Medical Journal* and in *Lancet* (Nov. 11, 1950).

The *British Medical Journal* reports that when Shaw addressed a medical meeting his more preposterous statements were greeted with enthusiastic laughter. Whatever case he had against the doctors lost much of its force and point by—to the medical mind—absurd overstatement made, it would seem, for effect, and by such inaccuracies as "microbes are so fond of carbolic oil, that they swarm in it." Neoarsphenamine according to Shaw "combined mercury with arsenic." This journal reveals that in discussion of medical matters Shaw coupled a supreme disregard for fact with a dogmatism that exceeded the dogmatism he condemned in the doctor. Part of his case against the medical profession is said to have been based on the violence of his feelings about vivisection, and he is quoted as having said, "I would rather swear fifty lies than take an animal who had licked my hand in good fellowship and torture it." So strongly did he feel that he went to the ridiculous limit of saying, "One of the reasons why radiography was not discovered sooner was that the men whose business it was to discover new clinical methods were coarsening and stupefying themselves with the sensual villainies and cut-throats' casuistries of vivisection." However, Shaw was good for the profession, in that from time to time he stung it out of its complacency, but his ignorance of medical matters often caused the point of his argument to be lost, ignored or forgotten. For example, he criticized with justice and accuracy the neglect by medicine of statistics and talked of the need for control experiments. He saw, too, that conditions of practice were in many respects unsatisfactory. He saw the practicing doctor as "an emergency man" whose pay is wretched. He wrote about their real woes being the shabby coat, the wolf at the door, the tyranny of ignorant patients and the work day of 24 hours. The *British Medical Journal* article points out that behind the mockery and ridicule there was a passion for order, a hatred of poverty and an impatience with imperfection that made him criticize severely even those he liked. The world has regarded him as a playwright who ranks with the immortals. Medical men and women—apart from those who react to him as a dramatist—will think of him with alternating moods of irritation and affection.

The *Lancet* in an annotation states that a generation that has carried two world wars and not unreasonably expects further calamities has had its compensations, not the least of these being the fearful joy of living alongside Mr. Shaw. He invited all to laugh and to think, not occasionally or slightly but as though the fountain of his hospitality would never run dry. His apparent random stirring up of complacency appeared in retrospect to be in no way random. There was a similar method in all his attacks against stupidity. He decided what he was going to say and then said it as amusingly and provocatively as he knew, and he knew how. In his robust assault on the medical profession in the play "The Doctor's Dilemma," he made no serious attempt to be fair; the argument is the thing; the argument that goads and delights and provokes the mind into wakefulness. Though science was his favorite target, he preached a curiously scientific message: nothing is to be taken on trust; nothing must be regarded as proved for good; opinion must never be confused with fact or prejudice with principle. Social justice to Shaw seemed not so much a moral ideal as a common sense necessity. (His only interest in the poor, he said, was to abolish them!) His reputation for sparkling coldness, which those who knew him personally knew well, was undeserved.

A Secretary of the British Medical Association.—The *British Medical Journal* of Nov. 11, 1950, reports that the annual meeting of the Representative Body was informed by Dr. Charles Hill of his intention to place in the hands of the council his resignation in view of the pressure of parliamentary work. He joined the staff of the British Medical Association as assistant secretary in 1932, was made deputy secretary in 1935 and succeeded the late Dr. G. C. Anderson as secretary in 1944. During the war years he made a reputation as a successful broadcaster and became widely known to the general public as the "radio doctor." He first entered political life when he stood as an independent candidate for Cambridge University in the general election of 1945, when he failed to be elected. He was elected as the combined National-Liberal and Conservative candidate at Luton in 1950, after a closely contested fight. His decision to resign his secretaryship was received by the council with the greatest regret, and his many friends and colleagues in the medical profession all wish him every success in the career to which he has decided to devote his immense energy and abilities. At its meeting on Nov. 1, 1950, the council of the association appointed Dr. Angus Macrea as the new secretary. He is a graduate of Edinburgh University, and has been assistant secretary since 1935 and deputy secretary since 1948.

ITALY

International Congress on Diseases of the Chest.—The first International Congress on Diseases of the Chest, sponsored by the Council on International Affairs, American College of Chest Physicians, held at the Carlo Forlanini Institute, Rome, was attended by about 1,000 physicians. At the inaugural session, the College Medal was presented to Sir Alexander Fleming, London, for his discovery of penicillin. Speakers at the session were Prof. Mario Cotellessa, high commissioner of hygiene and public health service; Prof. Gennaro Costantini, president of the Italian Federation Against Tuberculosis; Prof. Eugenio Morelli, professor of tuberculosis, University of Rome; Prof. A. Omodei Zorini, medical director, Carlo Forlanini Institute; Dr. Angelo Corsi, president, National Institute for Social Welfare; Dr. Louis Mark, Columbus, Ohio, president, American College of Chest Physicians; Dr. Jay Arthur Myers, Minneapolis, editor of *Diseases of the Chest*, and Murray Kornfeld, Chicago, executive secretary, American College of Chest Physicians.

More than 100 papers were presented at the congress by physicians from 40 countries. Every aspect of diseases of the chest was covered, including the latest advancements in antibiotic therapy and chemotherapy of chest conditions, thoracic surgery, especially pneumonectomy and lobectomy for carcinoma and tuberculosis, cardiovascular surgery, thoracoplasty, extrapleural pneumothorax and other surgical procedures. The medical aspects of pulmonary and cardiac chest conditions were discussed. Papers were presented by two delegates from the Soviet Union. Prof. Pavel Lukomski, of Moscow, read a paper entitled "Etiopathogenesis of Suppurative Diseases of the Lungs," and Prof. Feodor Uglov read a paper on "Lung Resection Ligation of the Pulmonary Artery in the Treatment of Chronic Suppurative Lung Disease." A paper, by Prof. A. N. Bakoulew on the use of blood transfusion in thoracic surgery was also presented by the Russian delegation.

There were special administrative meetings of the governors and regents of the college from the countries represented. Dr. Chevalier L. Jackson, Philadelphia, chairman of the Council on International Affairs, presided at these meetings, and reports were presented by Dr. Andrew L. Banyai, Milwaukee, chairman, and Dr. William A. Hudson, Detroit, vice-chairman of the Committee on Scientific Program. A European chapter

The items in these letters are contributed by regular correspondents in the various foreign countries.

of the college was organized, with Dr. André Meyer, Paris, as the general secretary. The regents of the college in Europe who will serve as the executive council for the chapter are Prof. Gustav Maurer, Davos, Switzerland; Prof. Étienne Bernard, Paris; Prof. Lopo de Carvalho, Lisbon; Prof. Nicholas Oekonomopoulos, Athens; Prof. Eugenio Morelli, Rome, and Sir Alexander Fleming, London.

Present at the congress was Prof. Ludolph A. Brauer, Munich, Germany, who is credited with having performed the first thoracoplasty. Professor Brauer is 86 years of age.

SURGICAL THERAPY OF PULMONARY TUBERCULOSIS

The report by Professors Morelli and di Paola on "apico-axillary covering" technic aroused great interest. This represents a forward step in apical thoracoplasty from the point of view of minor operative trauma, esthetic effect and functional and clinical results. Professors Santy and Berard, of Lyon, reported results of surgical extrapleural pneumothorax in 1,500 patients operated on since 1935, stressing the great value of this method. Professor Monod, of Paris, reported his results in 350 patients, who were followed for four to 13 years, and of whom 215 were clinically recovered. Professor Marmet, of Colmar, discussed the technic of extrapleural pneumothorax by axillary approach, without rib resection, while Professor Alarçon, of Mexico, surveyed the various methods of surgical intervention in pulmonary tuberculosis. He favored conservative methods, such as extrapleural pneumothorax, rather than radical methods, as pneumonectomy. Professors Chamberlain and Klopstock, of New York, and Mugrditchian, of Beirut, Lebanon, reported preliminary results of segmental resection and of lobectomy. It was shown that indications for these crippling operations are strictly limited, because it is usually not possible to remove all the foci of the disease with a partial resection of the pulmonary tissue, or to avoid in some cases postoperative dissemination.

Lehmann, the Swedish professor who discovered paraaminosalicylic acid (PAS), reported that while paraaminosalicylic acid exerts in vitro a bacteriostatic and bacteriolytic action similar to that of streptomycin it is not as efficient in vivo, especially in miliary tuberculosis. It is, nevertheless, useful in the exudative incipient form of tuberculosis, in some chronic forms and in tuberculous empyema, especially when the drug is combined with streptomycin, whose therapeutic action it potentiates.

Banyai (U. S.) and Edlin and Bassin (U. S.) reported on artificial pneumoperitoneum for the treatment of pulmonary tuberculosis and emphysema. Banyai, who initiated this method in 1929, favored its application even in cases of bilateral pulmonary tuberculosis and in cavities in the middle and lower thirds of the lung. In patients with pulmonary emphysema, improvement in the functional capacity of the diaphragm and a more active respiratory exchange were observed.

METHODS FOR STUDY OF PULMONARY TUBERCULOSIS

Professor de Carvalho, of Lisbon, who introduced angiopneumography, showed that simple angiopneumographic pictures of arterial and venous vessels are insufficient, since they do not show the capillary phase of the circulation. Professor Condorelli, of the University of Catania, Sicily, discussed anterior and posterior pneumomediastinum, introduced by him that permits roentgenologic examination of organs and pathological growths in the mediastinum.

TUBERCULOSIS CONTROL AND NONTUBERCULOUS RESPIRATORY DISEASES

Professors Sarno (Uruguay), Jiménez (Mexico) and Urgoiti (Spain) reported on the large scale experiments done in their respective countries with BCG vaccine. All speakers favored this method of vaccination. Professor L'Eltore stressed the increased mortality due to cancer of the lung and the declining number of deaths due to tuberculosis in all civilized nations.

Reports presented on nontuberculous respiratory diseases were concerned especially with bronchiectasis, chronic pulmonary suppurations and pleuropulmonary tumors. Several Italian physicians discussed Omodei Zorini's syndrome of bronchiectatic bronchiolitis, which they attributed to congenital malformations.

Professors Bernard and Mayer, of Paris, discussed nontuberculous pneumothorax and its treatment, while Professor Paolucci, of Rome, stressed the importance of early surgical treatment in chronic pulmonary abscesses.

Overholt's (U. S.) report on pleuropulmonary tumors was illustrated by colored slides. Thompson (U. S.) reported on the treatment of coronary insufficiency by introduction of talc into the pericardial sac, to effect hyperemia of the myocardium.

NORWAY

Implications of Empty Sanatorium Beds.—There is a possibility that, a few years hence, Norway may find herself in the position of a victorious general who wonders how he is to employ all his armies. The campaign against tuberculosis in Norway has been conducted with such sustained vigor during the past half-century that the country is now confronted in some instances by vacant sanatorium beds and the problem of how to fill them. This happy state of affairs needs some explanation.

With a population of only a little more than 3,000,000, Norway is now endowed with more than 100 tuberculosis cottage hospitals or homes with more than 3,000 beds, and a score of sanatoriums and coast hospitals with some 2,000 beds. Also, there are several general hospitals whose staffs include such eminent chest surgeons as Holst, Semb and Murstad, who devote several beds at their disposal to lung surgery, their patients being shuttled from sanatorium to hospital and back again to sanatorium, according to the needs in the individual case. A rough and only approximate guide to the number of patients requiring treatment in these beds for the tuberculous can be found in mortality statistics for 1948. In this year 18.7 per cent of all the deaths were due to diseases of the circulatory system, 15.7 per cent to malignant disease, 7.5 per cent to pneumonia, 6.2 per cent to accidents, including murder and suicide, and only 5.8 per cent to tuberculosis. While in 1900, when Norway's population was only a little over 2,000,000, there were some 7,500 deaths from tuberculosis, or a mortality of 32 per 10,000, there were a year ago, when the population was just over 3,000,000, only some 1,600 deaths from tuberculosis, i. e., 5 per 10,000.

This vast improvement is due to many factors, such as a higher standard of living and hygiene. The patient who half a century ago died at home, passing his disease on to his children, is now provided with comfortable quarters in a tuberculosis home in which he is effectively isolated from susceptible contacts. BCG vaccination has done much to prevent the outbreak of new cases, and mass radiography has done much to reveal hitherto unknown sources of infection in elderly persons. Both these measures were made compulsory in 1947, but the compulsion is carefully kept in the background and very seldom has had to be invoked. Another measure playing an important part in the prevention and detection of early tuberculosis is tuberculin testing and the organization of tuberculin matriculation, a term coined by Dr. T. Gedde-Dahl, secretary general of the Norwegian National Association Against Tuberculosis. By this term he means the inclusion of every member of the community in a system of registration providing for the recording and control of tuberculin tests carried out according to plan.

When one turns from prevention and diagnosis to treatment, he again finds a remarkable recent change with regard to its duration. It is, in fact, so much shorter on the average than it was only a few decades ago that the turn-over in sanatoriums has been greatly speeded up. The total number of patients with which each sanatorium is able to cope is therefore much greater than it was. Artificial pneumothorax and pneumoperitoneum, thoracoplastic operations, lung resections, streptomycin, paraaminosalicylic acid (PAS), and other modern remedies have all contributed to this achievement. Fewer cases, earlier cases and shorter treatment have all played their

part in wiping out the doleful waiting list. May not Norway with her available sanatorium beds and her staff of skilled thoracic surgeons and tuberculosis specialists be able to help other European and even transatlantic countries in reducing their waiting lists by offering hospitality to their patients? Norway's "soft" currency and comparatively low cost of living should add to the attractiveness of this opening.

Venereal Disease Statistics.—Pronounced changes in the incidence of the venereal diseases before, during and after World War II and up to the end of 1949 are commented on by Dr. Jon Björnsson, who recently moved up in the Ministry of Health to the post of second in command, with the title of *Medisinalraad*. This post was vacated by Dr. John Caspersen, who was promoted to director of the Rikshospital in Oslo (Dr. Fredrik Mellbye has succeeded Dr. Björnsson as head of the Hygiene Office in the Ministry of Health). Before the war, the annual number of gonorrhea cases numbered 5,000 to 6,000. This number rose to over 11,000 in 1946, a figure not strictly comparable with prewar figures as the notification of cases of gonorrhea was more effective in 1946 than it had been. Since 1946 there has been a decided fall in the number of notifications, which in 1949 were down to 3,440. Before the war only 300 or 400 cases of syphilis were reported yearly. In 1943 there were as many as 1,977 cases of syphilis recorded, whereas the figure for 1949 was only 846. It will thus be seen (and this is rather curious) that, while the gonorrhea rate in 1949 was much lower than what it was before the war, the syphilis rate was much higher.

The venereal disease notifications for Oslo alone, presented by Dr. H. C. Gjessing, deal with the year 1949 and show that as many as 1,022 of the 1,215 new cases of venereal disease concerned gonorrhea. The figures for 1949, compared with those for 1948, show a reduction by 39 per cent of the notifications of venereal disease. This reduction was greatest in the case of syphilis. Statistical records of the venereal diseases in Oslo were started in 1877; since then there have, of course, been wide fluctuations, but the present position, judging by the statistics for 1949, is quite satisfactory. In 1949, there were only 28 cases of venereal disease per 10,000 inhabitants, the syphilis rate being only 4 per 10,000.

Child Psychiatry in Norway.—Our growing realization of the importance of the psychiatric problems of childhood has recently found expression in many different ways, not least in the appointment in April 1950 of a psychiatrist to take charge of a special child psychiatric department with 11 beds in the pediatric department (Barneklinikken) at the Rikshospital in Oslo. The Rikshospital is the main hospital of the University in Oslo. As sometimes happens in the Scandinavian countries, it was necessary in this instance to import someone from abroad, and the selection of Dr. Karen Margrethe Simonsen of Denmark to fill this new post was exceptionally felicitous. In addition to her 11 inpatients, she is responsible for the children who come to her department for observation and treatment during the day. The housing of her department within the walls of the Rikshospital enables her to cooperate with the other departments in this hospital, to the great benefit of her patients.

As in Denmark, the delinquent or problem child is not dealt with in a special law court for children but is put in the charge of a children's welfare committee, of which there is one in each municipal district. The criminal responsible age is 14 years, but delinquent youngsters between the ages of 14 and 18 need not run the gauntlet of public prosecution; they come by preference under the care of a child welfare committee. The Bureau for Mental Hygiene (Mentalhygienisk Kontor) established in 1930 in Oslo, deals with children as well as adults. It is staffed by a psychiatrist, a psychologist and a secretary. Since 1947 they have dealt one evening every week with patients in the separate child guidance clinic in the charge of this bureau. In 1946 the school authorities of Oslo established a school psychological bureau where school children encountering difficulties at school or who have behavior disorders are examined and treated. The nine persons on the staff of this establishment examined some 800 children in 1949.

Outside Oslo, in the Baerum district, what had been a reformatory school was converted in the autumn of 1950 into a "home" for the observation and treatment of children with behavior disorders. This "home," for girls only, has a staff of 28, with a psychiatrist and two psychologists. There is accommodation for 40 patients between the ages of 9 and 21 years. There is also a treatment department for 14 children. The new University of Bergen will, it is hoped, not only have a psychiatric clinic but a special child psychiatric department. In Norway as in Denmark, there is still a need for well trained psychiatrists to deal with mentally abnormal children, whose numbers are much greater than was previously suspected.

DENMARK

Postgraduate Training.—The ample opportunities, compulsory and voluntary, enabling the Danish doctor to enjoy postgraduate training fall into two main groups, according to whether such training follows closely on the heels of graduation as a doctor or is provided when he is already busy in general practice. Having passed his final examinations, the young doctor may not at once plunge into general practice but must first spend at least one year in hospital training, half a year on the surgical and half a year on the medical side. If he wishes to practice obstetrics he must also spend at least a month in a maternity hospital. It is now proposed that to this compulsory hospital service should be added compulsory service as an assistant to an already established general practitioner for two or three months to a year. There are some 2,000 doctors already established in general practice, and it is proposed that the 200 medical students qualifying as doctors every year should be apprenticed to a corresponding number of general practitioners, one in 10 of whom would be willing to teach them the administrative as well as the more human side of general practice. At present the average age of students on passing the final examinations is 26 years, and already the postgraduate preparation for general practice is so long that it runs into four to six years. And another year or more must pass before the young general practitioner can work under the health insurance scheme, which covers about four fifths of the population.

So far postgraduate training, present or planned, is compulsory. But postgraduate training later in life is voluntary in principle. The time may come, however, when general practitioners will be obliged by circumstances to brush up on their knowledge of medicine periodically. As early as 1914, the Danish Medical Association began to plan for systematic postgraduate courses for general practitioners, and since 1919 such courses have been held nearly every year. To begin with, these courses were given only in Copenhagen, but of late they have been extended to the provinces. The attendance at these courses has been rather poor, with only 60 to 70 postgraduate students, several of whom have come again and again. It would be technically possible, though not desirable, for the Danish Medical Association to exclude those of its members who fail to attend such courses. Such disciplinary action is, however, not conceivable at present. Since 1946, postgraduate courses have been decentralized. Instead of lasting a whole week or more and being located at headquarters, they are broken up into a series of lectures and demonstrations given at the local branches of the Danish Medical Association throughout the country. About 30 to 50 per cent of the general practitioners belonging to a given branch attend these evening lectures without having to neglect much of their daily work. The lecturers are recruited from the staffs of the large hospitals and from among specialists, and the expenses (fees to the lecturers, traveling and other expenses) are defrayed by the Danish Medical Association, which makes a special levy for this purpose. Besides these specially organized courses, there is an enormous amount of postgraduate training being conducted throughout the country, through medical society meetings and the generosity with which the senior medical officers of hospitals throw their wards open to doctors of all ages.

CORRESPONDENCE

CRITICISM OF DEVOTO'S ARTICLE IN HARPER'S MAGAZINE

Editor's Note—Following are letters from two members of the American Medical Association who wrote to Mr. Bernard DeVoto criticizing his recent article in *Harper's Magazine*, January 1951:

Dear Mr. DeVoto:

I'm sorry I didn't write you in November to tell you how much I enjoyed and appreciated your wonderful article entitled "But Sometimes They Vote Right Too." Your development of the thesis that the expert "can be a fine hired hand but we have paid high to learn that he makes a damned bad boss" was so completely in accord with my own thinking that I found myself cheering from the first word to the last.

I have preached and written in the same vein for years (enclosed is a reprint of "The Health Department, A Good Servant But Bad Master") and I was delighted to see the anti-authoritarian viewpoint so beautifully and forcefully expressed.

I didn't write you—but I did recommend your article to a goodly number of my physician friends. Today my friends, having read your "Letter to a Family Doctor," are calling me to ask what the h . . . goes on.

I have tried to apologize for you—and felt like the fond mama who tried to justify her son's faux pas by saying: "But you really must excuse Johnny. He has such a bad cold today he doesn't know what he is saying."

I am deeply disturbed, and write as a friend and admirer, in the hope that what I say will be accepted in the spirit in which it is intended.

You lost your temper. So what? You descended to name-calling in lieu of argument. Haven't we all? You spewed forth nonsense cribbed direct from the propaganda of Oscar Ewing, Michael Davis, and the so-called Committee for the Nation's Health (I thought it was *people* who have health) that would gag a maggot. Again, so what? You have lots of quite respectable company.

I am not too concerned about the disservice you have done to medicine, to yourself, and to your country. What concerns me is the needlessness of the lack of understanding that caused it. I am disturbed because doctors like myself have failed to communicate to persons such as you an understanding of what *is* wrong with the practice of medicine. If we had succeeded, I believe you would be helping us correct what is wrong instead of throwing large-size monkey-wrenches in the machinery.

Some of your points are well taken, but unfortunately they got lost in the shuffle. Much that you say in your letter is devastatingly true—but so also was there much truth in what Hitler said, and in what Stalin says, and Oscar Ewing, and even the A.M.A.

Whitaker and Baxter have been effective without a doubt, but many of us cringe at their methods, and resent falsity and arrogance as much as you do. We also feel that such methods are eventually self-defeating, and I, for one, have told them so.

But we do not resign from the United States because we disapprove Truman's policies. And we stay in the A.M.A.—and pay our dues—not only because of its tremendous value to us and to you, but also because by doing so we retain both a voice and a vote, both of which we would lose should we resign.

The doctors have been woefully wrong in many ways (although not in the ways you think) but that does not mean that the socializers are right. And let's not argue about the name. Commercialization and socialization of medicine are equally bad; and when, through either, any person other than the patient can control how much, or for what, his doctor shall be paid, *vital* rights and protections of the patient have been destroyed.

The doctors know all too well that medical economics is a mess, but they are far too close to medical realities to be carried away by the irresponsible promises that the socializers can make seem so plausible to you. Medical economics does not operate in a vacuum, and social and economic injustice will not be ameliorated by providing people "free" (and whether it suits them or not) with mass-produced "scientific medical care."

"When things are bad, try not to make them any worse because the chances are they're bad enough already."

You might give thought to the proposition that "compulsory health insurance" is in reality a tax-supported subsidy to the doctors who probably constitute the only organized group who have fought against subsidization *for themselves*. You might wonder whether the doctors' motives in opposing this subsidy are necessarily as selfish as you have been told.

I am sending under separate cover, copies of two lectures I give the senior medical students at the University of Washington, as part of the doctors' campaign to correct what is wrong with medicine.

I hope you will read them, and I think you will find them in complete accord with your November article. I think, too, that they may help you understand what disturbs me about your January article.

I would really appreciate any suggestions you can make toward improving the lectures. I would also appreciate any suggestions as to how a better understanding can be communicated to persons like yourself who should in all reason be fighting on our side.

F. B. Exner, M.D.,
509 Olive Way, Seattle 1.

P. S. I *have* both read, and studied the implications of, all the successive manifestations of the Wagner-Murray-Dingell-Thomas-etc. bills.

Dear Mr. DeVoto:

I have always been one of your devoted readers and an admirer of your choice of material for the "Easy Chair." As a physician in private practice for fourteen years, I would like to answer your "Letter to a Family Doctor," with which I take issue, discussing the separate points gradatim.

My first reaction to your article was: "What has angered this man? Why is it so difficult for an intelligent individual to discuss medical care . . . the maintenance of the body machine in good working order . . . objectively?" I am not sure I know why, but since medicine has become so popular a topic in conversation and print I have found that most discussions have ended in bitter wrangling and personal invective.

You have used the old parliamentary trick of seemingly accepting one premise (gladly) to show what a fine fair fellow you are, so that you are free to attack the whole from what would appear to be an impartial, objective point of view. I refer to the fifteen dollars you paid for a house call . . . of course you are angry. In my city where the cost of living is commensurate with yours, my fee for house visits is five or six dollars (I am a specialist duly certified in both the fields of internal medicine and cardiology). Under our system of free enterprise (latterly the system has become a quite limited free enterprise) I know you can find a capable physician who will take care of your cold for at least half the fee you paid. Since we are both working under the same free enterprise system, you are free to sell your article to another magazine for a higher price. Should I feel sorry that you are paid the same for your writing as in 1946? Let me tell you that I receive both in the hospital and in my office the same fee of ten dollars for an electrocardiogram as I received during the depression of the thirties.

Do you believe that you alone are digging into your savings, Mr. DeVoto? Most Americans are, and it has nothing to do

with the cost of medical care. You might better blame the high price of food and lodging which are far more important to your constant well being than the services of any physician. Incidentally, there are any number of sickness and accident policies to cover your loss of income while incapacitated.

So you dislike the American Medical Association's campaign literature, the dramatic sketches, the newspaper ads? So do I, and so do many others. Of course it's corn, but it sells . . . you buy the "Seneca Snake Oil," don't you, if you are the kind who is swayed by slick selling without due deliberation before purchase. You see, Mr. DeVoto, we had to fight fire with fire. Your tax money and mine was being spent by the present administration to sell government medicine to the people of the United States in just the same slick fashion to which you so strongly object (see the Senate investigation of Mr. Oscar Ewing). The past two years have witnessed an epidemic of investigations aimed at medical societies and voluntary medical care plans dramatically timed to aid the administration's campaign for compulsory health insurance. The files of some medical societies have been rifled with robbery no motive (see a recent issue of the "Easy Chair" on the Police State). I can't imagine duller reading than the files of a medical society. It is my fervent hope that the culprit was bored to death, a fate he so richly deserved. The Department of Justice has been ordered (by whom do you suppose?) to place medicine under surveillance for possible violations of the antitrust laws. But other groups of men, who use the market place to bolster their incomes, can halt the production of steel, prevent the fair sale of oleomargarine, and cause food prices to soar to such heights that many children are now on an inadequate diet. The reason? Unions can claim exemption from the antitrust laws and thus be safe from such tortured decisions of conspiracy in restraint of trade: a decision recently made against a medical society (to which you allude) and one which came from that white marble edifice in Washington which bears the legend "Equal Justice Under Law."

You say that I (as a doctor) have no business getting mixed up in the affairs of government . . . that I am not qualified to influence the voters and legislative bodies to reflect on what I believe to be right. Why, sir, you and I *are* the government, government *is* my field and yours, and the sooner we Americans wake up to the failure of the present administration in domestic affairs, the sooner we will get qualified leadership. A short time ago, my wife and I were asked by our church to conduct a forum on the proposed legislation for compulsory health insurance. We spent considerable time reading the bills and the pros and cons of such a move. The one thing I will always remember about that meeting was the abysmal ignorance of the majority concerning even the existence of any such legislation. Let me point out to you (have you read the bills Mr. DeVoto?) that no provision is made for the indigent, and only vague statements are made as to how this gigantic program could be financed (borrowing from general funds, etc.).

No, I am not a sociologist or an economist (I don't believe you are either), but let me point out a few basic principles in those fields: (*a*) there is no such thing as security, (*b*) living itself is a calculated risk or it wouldn't be worth the trouble, (*c*) the rich and the poor will always be with us, (*d*) no government can give its people that which doesn't exist. Believe me, there isn't the wherewithal to give you that security which you apparently want. You are complaining bitterly *now* of the high cost of living and high taxes you have to pay. Yet you ask for more!

And now to the part where you hit below the belt. To be addressed as a "Christian" often as not implies having those virtues which are considered by most religions as of the highest. To me the letter "Dear Christian Colleague" was not antisemitic in character. You must know that many of our greatest physicians are Jews and occupy esteemed positions on the faculties of our great medical schools. I don't know whether you are Christian, Jew, or agnostic (and care less) but like your friend from Vermont, you put me in mind of Westbrook Pegler.

Certainly medicine is a public matter. So is road building, sanitation, safe water supply, quarantine regulations, etc. The excellent U. S. Public Health Service and the specialized fields of military medicine attest to the numerous facets of complete medical care. But you become a little confused when you say those men are practicing "government medicine," a confusion which is understandable since medicine is not your field. You are also wrong in stating that the best medical care is found only in teaching hospitals. And you are wrong simply because you do not know whereof you speak. Of course there are areas in the U. S. to be improved upon . . . there always will be. The goal will always lie ahead.

But here you are, fretting about the cost of medical care, when your country stands in danger of losing its life. If you don't believe with me that our government is sick, then I beg you to get yourself informed. Acquaint yourself with the Hiss case and many like it. Or do you, like President Truman, believe it's all a "red herring"? While the present administration worried over how to enact further legislation leading to socialism, a disease called communism was setting in with Korea the first overt symptom. I have no objection to your being a socialist. For heaven's sake just say so, and if the majority of the people desire a socialist state, then that is what we will have. I simply defend my right to speak against it. The people of this country have the right to hear the medical profession's reasons for believing that the health of the nation will *not* be best fostered and maintained under a compulsory health insurance act, so that as voters they may fairly choose the course they wish to follow. "Choose" it, mind you, not have it chosen for them.

You want the government to pay your little medical bills (you know who will pay in the end), while I and thousands of other doctors will soon register again to serve our country (I completed four years of service in 1946). Nobody's complaining, but it's tiresome to be expected to act as a little tin god on the one hand, and berated as an unfeeling, slow witted extortionist on the other, one who is irresponsibly withholding from his fellow citizens the benefits of better health for less money. The cost of administering any sort of comprehensive medical insurance plan on a federal basis would eat up most of the monies collected for that purpose. If you have ever served in the Army or worked for the government you will know that. It is you who are not practical, Mr. DeVoto. As for the political side of it, I can't help but feel that each new government control is but one more encroachment on my individual liberty. The "tyranny of the majority" is no less tyranny because it is administered by the majority or a minority purportedly representing the majority. Why are you so surprised and hurt that we speak at all?

And while you call me irresponsible, may I remind you, that your responsibility to your fellow citizens is infinitely greater than mine. The pen is greater than the pill Mr. DeVoto, and much more important. My insignificant ministering to mortals will die with the mortals I treat, but your words . . . who knows but that the bicentennial issue of 'Harpers' will contain this very article I discuss as "Representative of the Times"?

And so I object to your "Easy Chair" this month. The chair, Mr. DeVoto, was anything but easy and you could not remain objective. In order to "sell" your article you resorted to smart writing, to quotation out of context . . . you put me in mind of a sophist.

As we grow older, most of us realize that nothing is all black or all white. The truth usually lies somewhere in between, and I dislike as much as you and Dr. Means the propaganda campaign that the A.M.A. was forced to put on as an extreme measure to try to wake up the country to the fact that we are going down the road to a socialism that we (whether you think it or not) sincerely believe would prove distasteful to the majority of Americans.

In our house we stopped listening to the radio years ago in order to avoid being commanded to move our bowels, to take this or that vitamin, or cure our sore throats with a certain brand of cigaret. I am surprised that you listen, but you must admit that it certainly sells the product.

J. Richard Durham, M.D.,
623 Delaware Avenue, Wilmington, Del.

BUREAU OF INVESTIGATION

COMMENT ON COURT OPINION THAT INTERNAL CANCER CAN BE CURED WITH MEDICINE

On Nov. 15, 1950, there was filed under the Federal Food, Drug and Cosmetic Act, in the name of the United States of America, a complaint in federal court at Dallas, Texas, praying for an injunction to restrain the Hoxsey Cancer Clinic and Harry M. Hoxsey from causing to be delivered in interstate commerce certain medicines for the alleged purpose of curing internal cancer.

A trial was had before the court, without a jury. On Dec. 21, 1950, the court filed findings of fact and conclusions of law. Therein it was stated, among other things, that the complaint of the United States of America charged that the defendants were delivering in interstate commerce consignments of articles of drugs which consist of liquids intended for use in the mitigation, treatment and cure of cancer in man; that one of such liquids is brownish-black in color and the other pink, and that they are shipped in sixteen-ounce bottles and bear labels on which appear substantially the following: ". . . One teaspoonful after meals and at bedtime . . ."; that such drugs are delivered to physicians and practitioners in concentrated form, also, in sixteen-ounce bottles, the brownish-black concentrate bearing a label on which appears the following: ". . . To: Regular concentrate add enough water to make one gallon. Shake well." and the pink concentrate bearing a label on which appears the following: ". . . To: Lactate Concentrate add enough Lactate to make one gallon. Shake well."; and that consignments of said drugs which are distributed and dispatched to physicians, practitioners and other persons are misbranded within the meaning of the law in that the booklet accompanying said drugs contains general and specific statements which represent and suggest that said drugs are efficacious in the treatment, mitigation and cure of cancer in man, which statements are false and misleading, since said drugs are not efficacious in the treatment, mitigation and cure of cancer in man.

The court made findings of fact, as follows:

1. The respondent did forward in interstate commerce to physicians in other states who had been present at the Hoxsey Clinic and studied its methods and efficacy for a considerable time, and were using such medicines and prescriptions in their similar treatment.

2. That accompanying such shipments were booklets containing the statements and illustrations quoted in the pleadings of both complainant and respondents.

3. That the respondents' treatment is not injurious. Some it cures, and some it does not cure, and some it relieves somewhat. The respondents do not guarantee to cure.

4. That the statements contained in said labels so pleaded, are neither false nor misleading. That if in doubt as to the effectuality of the treatment, they take the patient on trial, and, frequently, without charge to the patient.

5. That the percentage of efficient and beneficial treatments by respondents is reasonably comparable to the efficiency and success of surgery and radium, and without the physical suffering and dire consequences of radium, if improperly administered, and surgery, if not successful in completely removing the entire malignant portion.

6. That cancer is an aggregation of outlaw cells with the propensity to migrate and grow in size and in the territory covered and the definite destruction of the body, or, a serious portion thereof.

7. That the respondents do have two basic medicines to which are added, if and when the examination of the patient calls for such additions, a large number of drugs and mitigations in a separate room at the clinic. That it also subtracts and changes the basic elements of the two medicines as indicated, in the judgment of the Medical Director of the clinic when indicated by the examination of the patient, but that no such prescription accompanies shipments made in interstate commerce to the doctors in other states who are using the Hoxsey method, nor does the same appear upon the bottles or receptacles of the medicine.

The court stated in "Conclusions of Law":

. . . Nevertheless, the facts disclosed by the testimony and found as above, as well as the failure of the government to successfully carry the burden and show by a preponderance of the testimony, the correctness of its charges, merits, and must have, a refusal of the injunctive relief sought, and a dismissal of the bill, and such order and decree is, accordingly, announced.

In the case of Harry M. Hoxsey, plaintiff, vs. Morris Fishbein, William Engle, W. R. Hearst Jr., the American Weekly, Inc., Hearst Consolidated Publications, Inc., and the American Medical Association, filed Sept. 27, 1948, and tried in Dallas in March 1949 before the same federal judge, a motion was filed on behalf of the defendants served in that case that Mr. Hoxsey be ordered to produce all written formulas which he contends are remedies for the cure of cancer, and the court entered an order directing him to produce written formulas of the alleged external and internal remedies used in the treatment of cancer in the Hoxsey cancer clinic in the city of Dallas, with proper identification of the formulas and their ingredients, and pursuant to that order Mr. Hoxsey filed in court in that case a document signed by him in which it was stated, among other things, that the constituent elements of the remedy used in the Hoxsey Cancer Clinic as "Hoxsey's Internal Cancer Medicine" were as follows (spellings his):

1. Hoxsey's Internal Cancer Medicine (Active Ingredients)	(Our translations)
(a) Xanthoyllum Fraxineuem	Prickly ash
(b) Rhanus Frangula	Buckthorn
(c) Rahnus Pursihana	Cascara
(d) Kali Iodatum K 16602	Potassium Iodide
(e) Medicheo Sativa	Alfalfa
(f) Trifolium Pratense	Red Clover
(g) Sy. of Honey Drip Cane	Sugar Syrup

Analysis by chemists disclosed that Hoxsey's brownish-black internal "cancer medicine" contains about equal parts of potassium iodide and cascara, and about 96 per cent water. A nurse employed by Hoxsey for many years testified that she frequently mixed the brownish-black "cancer medicine" and that she used about four ounces each of potassium iodide and cascara in a gallon of water.

Mr. Hoxsey did not reveal the identity of the ingredients of the pink cancer medicine.

The case tried in March 1949, in which the identity of the drugs was revealed, was an action for libel and slander which was filed after an article appeared in the *American Weekly*, a Hearst Sunday supplement. This case was tried without a jury, and in his published opinion (83 Federal Supplement 282) the court wrote in part as follows:

The plaintiff operated in Dallas, Texas, in valuable property which he owned, a cancer clinic, in which he employed a licensed doctor [osteopath], nurses, and approximately twenty employees. His business had been in operation in Texas for a number of years.

The defendant [Morris Fishbein, former editor of The Journal], an employee of the American Medical Association, wrote articles which were published in some of the other defendants' newspapers, and this suit seeks to recover $500,000 actual damages and $500,000 punitive damages.

. . .

The plaintiff introduced the articles complained of. Fishbein, Hearst, Sr., Engle, and the American Medical Association, were dismissed because no valid service could be had on them.

The plaintiff then went at once to testimony by introducing over fifty witnesses who testified that they had been treated for cancer at his clinic and that they had been cured . . .

He also offered testimony tending to show that surgery, and particularly x-ray and radium would produce cancer. [Italics ours.—Ed.] Some of the patients stated that they had been treated by other physicians and that their condition had either grown worse or no better, then they went to the plaintiff's clinic and were cured. Likewise, he presented testimony tending to show that the American Medical Association had sent its investigators into Illinois and that records concerning his father's death certificate and graduation as a veterinarian had disappeared. That the death certificate would have shown that the father did not die of cancer, but of erysipelas, but that another death certificate had taken its place which was prepared eight or ten years after the father died.

. . .

As a justification, under the statute, for the publications, the defendants offered a number of physicians from various sections of the nation who testified that medicines such as the plaintiff caused to be used, and such treatment as he caused to be prescribed for those who appeared at his clinic, would not and could not result in the cure of cancer.

Upon cross-examination, some of them admitted that surgery and x-ray, particularly x-ray, would cause cancer if not used skillfully.

The defendants offered testimony which showed that the plaintiff had performed at least one operation, and that while the operation was minor in its nature, it included the treatment of the open wound with a powder such as had been used under his direction, and that the patient died of poisoning shortly thereafter.

The two schools of medicine, to-wit, the homeopathic and the allopathic, were defended respectively by the plaintiff and the defendants. Such ingredients of the salve, powder and tonic as the plaintiff caused to be used were named in the homeopathic pharmacopeia.

. . .

I think it may be fairly said that from the testimony it may be concluded that there is a skin cancer, and an internal cancer—the latter being the more deadly.

. . .

The plaintiff courted publicity, and he published a pamphlet in which he detailed that the remedies which were being used at his clinic were the result of his father's observation of a horse which had a cancer on its head, and that it would immediately go to a certain tank of water when it was free and that water seemed to alleviate the pain of the sore.

The court went on to say:

Those facts, summarized, are: That the method pursued by the plaintiff consists of healing neither by radium, x-ray nor surgery, but by the application of external medicines and solutions, and by internal medicines. That the plaintiff has no license to practice medicine. That his father did die of a cancer, and that his father was a veterinarian and that the father used as a virgin healer remedies over which the plaintiff and his brothers and sisters had a lawsuit because they charged that he appropriated those remedies, and they sought a large sum. .That the charge in the publication that the plaintiff had "hoodwinked" jurists, was not true. That the publication of the article has not damaged the plaintiff, except nominally, since his source of revenue arises from publicity in which he, himself, engages, not only by advertising but by article writers and by such controversies as he can provoke with the American Medical Association, and by making the people believe that it is hounding him and would like to drive him out of business . . . That there was no malice in the case, and that the publication arose from a mistaken sense of public duty. That there is no constitutional right nor statutory right for an individual or a publication to assume the position of censor over another's conduct. If there are two places for treatment of a trouble, the individual has a right to make his choice. The question of practicing without a license, is in the hands of public officials. The matter of malpractice or negligence, is in the hands of the individual who has suffered, and he has a civil remedy for damages.

Conclusions of law were found to the effect that the plaintiff was entitled to recover the nominal sum of $1.00 as to himself and $1.00 for the slander of his father.

By way of explanation, in the case tried in 1949 certain witnesses testified that the "minor operation" which resulted in the "death by poisoning" was witnessed by former employees of Mr. Hoxsey, as well as by a relative of the deceased and physicians who later cared for her. The employees testified that Hoxsey made an incision in the form of a small cross on the woman's breast with a razor blade; that the skin flaps were pulled back and that a compress containing a powder was applied and bound there. The powder was described as "Hoxsey's External Cancer Treatment." In complying with the court order mentioned, Hoxsey revealed that this powder contained (spellings his):

2. Hoxsey's External Cancer Treatment—Yellow powder (Active Ingredients)	(Our translations)
(a) Talacum	Talc or chalk
(b) Sulphur Sublimatum S 32.07	Flowers of Sulphur
(c) Arsenicum Sulphuratum Flavum	Arsenic Trisulfide
(d) As 2 S 3; 246.13	Arsenic Trisulfide
(e) Sambucus Canadensis	Sweet Elder
(f) Magnoliacea Glauca	Magnolia Flower
(g) Sanguinaria Canadensis	Blood Root
(h) Antimony Trisulfide	Antimony Trisulfide

The woman died within 10 days. The cause of death was recorded as "heavy metals poisoning."

The phrase "hoodwinked eminent jurists" was testified to as having reference to a visit by ex-Senator Elmer Thomas of Oklahoma to the Hoxsey "clinic" in 1947. Patients described their condition to Senator Thomas, and a transcript of the conversations between him, Mr. Hoxsey and the patients has been used by Mr. Hoxsey as advertising. The court was apparently of the opinion that a proper definition of the word "jurist" did not include a senator.

In each of these trials a large number of patients of Mr. Hoxsey's establishment were permitted to testify that they had had cancer, had been to Hoxsey, and were now well. Courts usually do not permit lay persons to testify in this manner, particularly when there is no proper foundation laid for such testimony by that of competent attending physicians as expert witnesses. Courts ought not to allow lay persons to testify that they have had cancer or any other disease, because they can but relate their beliefs, honest or otherwise, on matters on which they have no actual scientific knowledge. Furthermore, when such testimony becomes the basis for a judicial opinion that medicines for internal cancer having the ingredients listed above are favorably compared to accepted therapeutic measures in cancer, such decisions can only result in incalculable harm to cancer sufferers. Should patients having cancer which is amenable to accepted therapeutic measures abandon them in favor of internal medicines, they are losing their lives needlessly.

The Bureau urges the office of the Attorney-General of the United States to appeal the denial of injunction vigorously. Public health in the United States, particularly as respects the dread disease of cancer, deserves such course of action. There is no known liquid medicine which cures internal cancer.

MEDICAL MOTION PICTURES

Adventure in Sardinia: 16 mm., black and white, sound, showing time 21 min. An Associated British Production. Procurable from A. F. Films, Inc., 1600 Broadway, New York 19.

This motion picture has a strong thread of continuity, high entertainment value and dramatic appeal. At the same time, it tells scientific facts. The picture opens on malaria-ridden Sardinia. Into each of the primitive processes of living, washing, weaving, carving and plowing, malaria exerts its influence. There are chills and sadness, funerals and cemeteries. There are also scenes of high theatrical value, which follow one another in logical order: a mosquito emerges from the silent waters, the lighting of a lamp, the fly feeding on the sick. Then there is the campaign of spraying houses, churches, bridges, prehistoric ruins, draining swamps and searching out the hiding places of the mosquito. All of this is beautifully pictured and told. The last scenes show success: poor land and poor people, but malaria is gone; the villagers dance.

This film is recommended for medical students, nurses, missionaries, hospital staff meetings, technicians, and the laity. It will tell its story and teach its lesson wherever it is shown. The narration is good, and the photography is excellent and imaginative.

Striking Back Against Rabies: 16 mm., black and white, sound, showing time 10 minutes. Produced in 1950 by and procurable from United States Public Health Service, Communicable Disease Center, 605 Volunteer Building, Atlanta 3, Ga.

This is an an educational and propaganda film setting forth the steps a community may take to prevent or stop the development of a rabies epidemic. The epidemic is well under way before control measures are instituted, but it is suggested that, if similar procedures were instituted before an epidemic starts, it might be prevented. Careful attention is given to the interprofessional groups of physicians, health officers and veterinarians, since each has his role to play in rabies prevention. Vaccination of dogs is stressed as well as the importance of laboratory diagnosis of rabies in animals as a preliminary to the treatment of humans who have been exposed to suspected rabid animals.

The vaccine treatment of human exposures is mentioned and its importance stressed. The principal theme is prevention and the establishment of a planned program—community-wide in application—that will reduce the number of infected animals and the number of human exposures that could result. The technical material in the film is essentially correct and justifies the use of recommended public health procedures. Because this is a propaganda film, it stresses the protective aspects of vaccination. It is recognized by professional persons that vaccination of either dogs or humans is not absolute in terms of the individual but does have a certain effect on the spread of the disease. Also, no mention is made of the complications of the vaccine, although mention of this might not be necessary in a film of this type. It is apparently intended for the instruction of lay persons, those concerned with the

administration of quarantine regulations and those concerned with the problems of medicine, either human or veterinary. This is primarily a lay picture but valuable for various professional groups as a point of departure for more technical discussions. The photography and narration are well done.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Malpractice: Physician's Failure to Advise Patient of Nonunion of Fracture.—The plaintiff sued for damages alleged to have been caused by the malpractice of the defendant physician and from an order of the trial court dismissing the case for failure of proof, he appealed to the Supreme Court of Colorado.

The plaintiff fractured an ankle during the course of his employment and was treated therefor by the defendant physician. On appeal it was urged, among other things, that the defendant's failure to inform the plaintiff that he "had a broken and unhealed bone in need of further treatment" was malpractice. The injury occurred in the summer of 1942. The trial was begun on Sept. 30, 1948. Not surprisingly, said the court, the defendant had no recollection of what he had told the plaintiff as to the lack of union of the bone at that time. There is little, if any, conflict in the evidence, however. The substance of the testimony is that the plaintiff suffered a Pott's fracture—a fracture of the internal malleolus—and that after the cast was put on a roentgenogram disclosed that the fractured bone was in good position. Dr. Barnard, the only expert witness other than the defendant, testified from a second examination of the plaintiff in March 1947 that "the x-ray shows very good position of the bone. There is, however, a line here which shouldn't be—this dark line—which indicates that there isn't bony union across. We call it a nonunion, but the position is very good. That is very good for any end result. The only thing is that this isn't united—this bone—and the x-ray shows that. However, clinically, it is united; on examination it is united with gristle; there is gristle there, and that gristle keeps the bone in position; otherwise, it would slip from one side to the other." Even though the defendant may not have informed the plaintiff as to nonunion of the bone at the time of his discharge from the hospital, said the Supreme Court, there is no basis for claim of lack of skill or of negligent treatment. Where there is no evidence that further treatment was needed than that admittedly prescribed, or that there was any other reason for explaining to plaintiff a then existing condition of the bone, and no evidence that plaintiff suffered injury by lack of knowledge as to such condition, failure to inform the patient thereof is not malpractice.

It was also urged that "the care and skill ordinarily possessed and exercised in Denver by the medical profession was to mechanically unite the broken bone where the ankle was not stable and which recognized procedure defendant abandoned." The only evidence as to this matter is the testimony of Dr. Barnard, the bone and joint surgeon, who, in response to a question, answered: "Well, what period of time? We usually wait a period of six months to a year, and then if there is no union and the ankle is unstable and that ankle slips over because that bone is not holding it there, then we attempt to put in a bone graft or a screw or something. However, if the foot is stable or is rigid and holds in position, it is not necessarily the usual method." Dr. Barnard also testified that "if he were my patient, with a foot such as he had, and came to me for me to take care of, after looking at it, I would say, 'Now, I think you have a good foot. If you feel that it bothers you enough, if you want, I will do a bone graft, but I wouldn't recommend it. I don't think it would do you any good.'"

Admittedly, said the court, the plaintiff suffered a serious and painful injury, and admittedly he has suffered continuing partial disability therefrom, but there is no evidence in the record disclosing incompetence or negligence by the defendant in his treatment of the injury. In the absence of such evidence, concluded the Supreme Court, there is no legal basis for claim against the defendant and the trial court properly dismissed the suit. Accordingly the judgment of the trial court in favor of the defendant physician was affirmed.—*Cady v. Fraser, 222 P. (2d) 422 (Colorado 1950).*

Medical Societies: Validity of Code of Ethics.—This was an action by the owners and operators of two clinical laboratories against the New York State Society of Pathologists seeking an injunction to restrain the enforcement of one of the canons of its code of ethics. The case was heard in the supreme court, special term, New York County, New York.

In 1941, the defendant, the New York State Society of Pathologists, adopted a code of ethics, which provided in part:

"It shall be unethical for a pathologist to act as director, employee or consultant for a commercial laboratory. For the purposes of this regulation, a laboratory shall be considered a commercial laboratory whenever a layman or physician not a member of the American Medical Association is owner or part owner or participates or shares in the profits of the operation of such an institution. A pathologist affiliated with such an institution shall not be considered eligible for membership in this Society and shall be dropped from membership if he becomes so affiliated."

The plaintiff contended that the society adopted this provision in order to restrain the plaintiff's business and to monopolize, for physicians, the operation of clinical laboratories. The plaintiff also asserted that in order to advance this purpose and to force lay owners of laboratories to dispose of them to pathologists, the defendant society caused the department of health of the City of New York to adopt a regulation requiring clinical laboratories to be under the supervision of licensed physicians trained in pathology.

So far as the evidence adduced by the plaintiffs indicates, said the court, the alleged offending ethical regulation was strictly intramural in its implementation. It seems to me, the court continued, that the defendant society said in effect, "If you want to become or remain a member of this organization, you may not be employed by a commercial laboratory." The plaintiffs have not proved that the defendant did anything more than merely enunciate this principle. There has been no showing that in adopting this ethical principle the defendant was not aspiring to attain the objective reflected by the ordinary meaning of certain language it employed, namely, the elevation and the maintenance of professional standards for that branch of medicine known as pathology. The defendant had the right in good faith to define certain minimal professional requirements which it demanded of its own members. These requirements have a reasonable connection with improving and maintaining the conditions and standards under which the members practice their profession and also tend to regulate fair dealing among the defendant's members. There is no evidence that the defendant society as such imposed or sought to impose its ethical principles on any but its own members. If the indirect effect of the adoption of the ethical regulation was to cause the plaintiffs some additional inconvenience, embarrassment, restraints or even pecuniary loss, these are consequences that could flow from acts conceived from the highest and most unselfish of professional motives. They do not constitute, in and of themselves, grounds for the granting of the repressive equitable relief sought. There is no evidence whatever from which the court could draw an inference that the defendant sponsored, recommended or even suggested the enactment of the 1941 rule or regulation of the city board of health requiring clinical laboratories to employ, as director, a licensed physician with stated laboratory experience. Soon after it was organized in 1938, or two or three years before the department of health rule or regulation became effective, the defendant society passed a resolution decrying as unethical such employment of any of its members. The substance of this resolution was reiterated in the allegedly offending canon of ethics. Accordingly the court granted the defendant's motion to dismiss and judgment was entered in favor of the defendant society.—*Rockmore v. Fein, 99 N.Y.S. (2d) 409 (New York 1950).*

MEDICAL LITERATURE ABSTRACTS

AMERICAN

A.M.A. Arch. of Dermat. and Syphilology, Chicago

62:477-614 (Oct.) 1950

Disseminated Cutaneous Herpes Simplex (Kaposi's Varicelliform Eruption): Report of Case Complicated by Pregnancy and Herpetic Keratitis and Review of Literature of Congenital Malformations Due to Dermatotropic Virus Infections in Pregnant Mother. O. B. Miller, C. Arbesman and R. L. Baer.—p. 477.

Skin Tests in Various Infectious and Parasitic Diseases: Summary in Table Form. R. L. Baer and M. Yanowitz.—p. 491.

Cutaneous Leishmaniasis: Report of Cases Occurring in Great Britain and the United States. A. H. Conrad Jr., R. C. Manson and G. A. G. Peterkin.—p. 502.

Multiple Simultaneous Anomalies of Hair: Report of Case Exhibiting Trichorrhexis Nodosa, Pili Annulati and Trichostasis Spinulosa. M. Leider.—p. 510.

*Squamous Cell Carcinoma Simulating Granuloma Inguinale. A. B. Kern. —p. 515.

Podophyllin in Treatment of Cutaneous Carcinoma. A. B. Kern and H. Fanger.—p. 526.

Effectiveness of Antichancroidal Drugs Tested by Heteroinoculation of Bubo Fluid from Untreated Donor. R. R. Willcox.—p. 533.

Discussion of Tattoo Reactions with Report of Case Showing Reaction to Green Color. A. Rostenberg Jr., R. A. Brown and M. R. Caro. —p. 540.

Histopathologic Response of Skin to Gelfoam.® D. R. Taylor and L. Kaplan.—p. 548.

Squamous Cell Carcinoma Simulating Granuloma Inguinale.—Kern reports three cases in which squamous cell carcinoma was originally diagnosed and treated as granuloma inguinale. Analysis of these cases leads to the belief that carcinoma was primary in all. The author stresses the necessity of biopsy in every case in which a diagnosis of granuloma inguinale has been made and in which the lesion persists despite therapy. With such effective agents as streptomycin, aureomycin and chloramphenicol (chloromycetin®), failure to obtain a cure must cast serious doubt on the validity of the diagnosis. Even when Donovan bodies have been reported as present, lack of response to therapy demands a biopsy, for the inability to distinguish artefacts may be the cause of error.

A.M.A. Archives of Ophthalmology, Chicago

44:635-760 (Nov.) 1950

*Role of Adrenal Cortex in Treatment of Ocular Diseases with Pyrogenic Substances. W. Arendshorst and H. F. Falls.—p. 635.

Hereditary Nuclear Cataract. J. B. Lee and W. L. Benedict.—p. 643.

Studies on Crystalline Lens: III. Incorporation of Glycine and Serine in Proteins of Lenses Cultured in Vitro. F. C. Merriam and V. E. Kinsey.—p. 651.

Metabolism of Stored Cornea. A. deRoetth Jr.—p. 659.

Respiration of Cornea. A. deRoetth Jr.—p. 666.

Examination of Ora Serrata: Its Importance in Retinal Detachment. C. L. Schepens and G. C. Bahn.—p. 677.

Ocular Hypertension Induced by Air in Anterior Chamber. H. G. Scheie and W. Frayer.—p. 691.

Cultivation of Conjunctival and Corneal Tissue on Chorioallantoic Membrane. N. Sezer.—p. 703.

Localization of Lesions Causing Horner's Syndrome. N. S. Jaffe.—p. 710.

The Adrenal Cortex in Ocular Diseases.—Arendshorst and Falls point out that the underlying mechanism of nonspecific foreign protein shock therapy, widely accepted in the management of inflammatory diseases of the eye, was not well understood until 1946, when Selye introduced his concept of the general adaptation syndrome. These agents appear to be alarming stimuli, which evoke in the organism a countershock phase by activating the adrenal cortex via the pituitary and hypothalamus. This causes increased output of 11,17-oxysteroids from the adrenal cortex. Recently, it has been shown that administration of pituitary adrenocorticotropic hormone (ACTH) produces dramatic results in the acute phases of certain diseases of the uveal tract. Clinical study indicates that such responses simulate those encountered in the alarm reaction. Since the eosinophil count is a fairly specific indicator of the response of the adrenal cortex to administration of pituitary adrenocorticotropic hormone, the authors examined the response of this count to the administration of typhoid H antigen to see whether the effects of protein therapy depend on the release of 11, 17-oxysteroids from the adrenal cortex. They found that intravenous injection of foreign protein initiates an alarm reaction with subsequent production of adrenal steroids, as shown by a decrease in the circulating eosinophils. Maximal eosinopenia occurs about 18 hours after the injection. Eosinophil counts can be used in the determination of the time for the next injection. Patients refractory to foreign protein show no decrease in eosinophils. As evidenced by the eosinopenia, the adrenocortical response parallels the general constitutional reaction to the foreign protein.

A.M.A. Archives of Surgery, Chicago

61:593-786 (Oct.) 1950

The "Feel" of the Patient: Presidential Address. J. D. Bisgard.—p. 593.

Primary Carcinoma of Liver. K. E. Lemmer.—p. 599.

*Surgical Significance of Sweat Gland Lesions of Breast. D. H. Watkins and J. R. McDonald.—p. 610.

*Treatment of Far Advanced Carcinoma of Breast: Present Status of Testosterone Therapy. W. G. King.—p. 630.

Transesophageal Ligation of Bleeding Esophageal Varices: Preliminary Report of Seven Cases. G. Crile Jr.—p. 654.

Spontaneous Closure of Portacaval Anastomosis in Experimental Animal. T. C. Douglass and W. H. Mehn.—p. 661.

Experimental Use of Preserved Arterial Grafts in Portacaval Anastomoses. H. W. Southwick.—p. 667.

Surgical Management of Mediastinal Tumors. J. M. Dorsey and E. Scanlon.—p. 677.

*Differentiation of Congenital Cysts of Lung and Those Following Staphylococcic Pneumonia. W. J. Potts and W. L. Riker.—p. 684.

Middle Lobe Syndrome. F. R. Harper, W. B. Condon and W. H. Wierman.—p. 696.

Pleural Decortication in Prevention and Treatment of Thoracogenic Scoliosis. F. G. Kergin and F. P. Dewar.—p. 705.

Congenital Stricture of Portal Vein. E. B. Mahoney and L. Hogg Jr. —p. 713.

Arterial Homografts: II. Resection of Thoracic Aortic Aneurysm Using a Stored Human Arterial Transplant. H. Swan, C. Maaske, M. Johnson and R. Grover.—p. 732.

Surgical Problems Associated with Treatment of Patent Ductus Arteriosus. E. H. Fell and C. B. Davis Jr.—p. 738.

Effect of Beta Irradiation on Gastric Acidity. R. F. Hedin, W. R. Miller and D. G. Jelatis.—p. 748.

Treatment of Perforated Peptic Ulcers. W. T. McElhinney and M. M. Zinninger.—p. 758.

Massive Hemorrhage from Upper Gastrointestinal Tract: Study of 324 Cases Observed at Detroit Receiving Hospital over Nine Year Period. J. R. Brown, S. G. Meyers, J. L. Posch and O. Deneen.—p. 767.

Question of Return of Gastric Secretion After Complete Vagotomy. L. R. Dragstedt, E. R. Woodward and E. H. Camp.—p. 775.

Sweat Gland Lesions of Breast.—Watkins and McDonald point out that phylogenetically the milk glands of mammals are modified sweat glands. In studying the epithelium of the apocrine sweat glands they were especially interested in the hidradenocytes, investigating their presence in such lesions as cystic mastitis, intracanalicular papillomas, hidradenomas of the skin, comedo mastitis, comedo carcinoma and malignant tumors and in the apparently normal breast. The hidradenocyte is a cell type that secretes in apocrine fashion and has as specific cellular products eosinophilic, siderophilous, fuchsinophilous and sudanophilic inclusion bodies, as well as large amounts of cholesterol. The hidradenocyte may be identified by a polychromatic staining method devised by Lendrum and modified by the authors. It is a distinct cell type and is not to be regarded as a degenerate form or as residual lactation acini. Identification of the hidradenocyte on the basis of the presence

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The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1940 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

of iron granules has been unduly stressed. They do occur, but are so infrequent as to offer no aid in identification of this cell. Small hidradenocytic cysts are a constant feature of the cystic breast. The mammary alveolar epithelium and the hidradenocytic epithelium form cystic structures by secretion. This secretion is largely responsible in cases of papilloma for the discharge from the nipple, which in many cases is not hemorrhagic. The blue-domed cyst is lined by hidradenocytes and contains cholesterol, which is a specific product of this cell. The extramammary hidradenoma (of the vulva and the anus, for example) and the intracanalicular papilloma of the breast are the same tumor. The characteristic cells of the hidradenoma and papilloma are the usual type of glandular epithelium, the hidradenocyte, the myoepithelium, "clear cells" resembling those of the pars secretoria of the eccrine sweat glands and sebaceous-like cells. In addition, mucus-secreting cells have been identified in both tumors. The presence of these unusual cell types in a papilloma or hidradenoma does not indicate malignant change. The incidence of small hidradenocytic cysts in breasts that are the site of nodular carcinoma increases with the age of the patient. Comedo mastitis of the ordinary type is an anomaly of secretion involving the ordinary ductal epithelium, but the hidradenocytic type is a distinct pathological entity. Either the large ducts beneath the nipple have replaced their lining epithelium by hidradenocytes, or the hidradenocytic alveoli are greatly hypertrophied and have replaced the normal structure. Comedo mastitis of the hidradenocytic type is usually diagnosed as intracanalicular papilloma because of the discharge from the nipple. Both lesions contain hidradenocytes, which are responsible for the peculiar secretion. Intraductal carcinoma and carcinoma simplex of the nipple (Paget's disease) bear no relation to the hidradenocyte. There is no evidence of a sweat gland carcinoma of the breast. The hidradenocyte has never been observed as an integral part of a malignant lesion.

Testosterone for Advanced Carcinoma of Breast.—King reports on the effect of testosterone in 18 patients with far advanced carcinoma of the breast. Testosterone is of maximum value when (*a*) all the practicable surgical treatment has been completed, (*b*) benefits possible from roentgen therapy have been exhausted, (*c*) a postmenopausal status has been brought about either by irradiation or by surgical castration and (*d*) there has been pain of cancer origin requiring narcotics for relief. The amount, method and frequency of administration of testosterone is largely unsettled. At the author's hospital the starting dose was 250 mg. of testosterone propionate in oil administered intramuscularly every other day, with a total dose of 2,500 mg. as an intensive course of therapy. After a varying interval free of treatment, the patient was given either a single weekly dose or an intensive course of 2,500 mg. in 20 days at intervals dictated by the reappearance of pain or disability. Such "demand therapy" had led to an overall average dose of 200 to 300 mg. of testosterone per week for each patient. With this type of testosterone therapy seven of 13 patients with far advanced, painful and/or disabling cancer of the breast, who lived over 30 days after the start of therapy, were temporarily rescued from an invalid state or a terminal narcotic status and reinstated in family, home and society as useful citizens for an average of over a year. An additional four patients received enough benefit to have justified the use of the androgen.

Congenital Cysts of Lung and Those Following Staphylococcic Pneumonia.—Potts and Riker stress the difficulty of differentiating in infants and young children with cystlike cavities in the lung fields between congenital cysts and postinfectious pneumatoceles. Of the 12 cases of congenital lung cysts observed at the Children's Memorial Hospital in Chicago during the past 15 years, only six were definitely proved to be true congenital lung cysts at operation or autopsy. Three of the 12 lesions proved to be pneumatoceles or acquired cysts following staphylococcic pneumonia, and three could not be definitely proved pneumatoceles but appeared to be such. Differentiation between a congenital cyst or a pneumatocele is important. If a child has had staphylococcic pneumonia, or if there is a history of a severe respiratory illness, a radiolucent area in the lung is most likely an acquired cyst. A cystic cavity found before any respiratory illness has occurred suggests a congenital cyst. A sequence of roentgenograms showing an initial consolidation phase of pneumonia followed by the appearance of air bubbles and then resolution of the consolidation and formation of a thin-walled cyst in the lung is strongly indicative of the acquired nature of the disease. Congenital cysts usually maintain a rather constant size, while pneumatoceles may rapidly fluctuate in size. Congenital cysts may show thicker walls roentgenographically than acquired cysts. Infection in congenital cysts becomes a more frequent occurrence as the child gets older, but it is rare in the pneumatocele. On thoracoscopic examination the lining of a congenital cyst is smooth and glistening like epithelium. The wall of a pneumatocele is composed of compressed alveoli in a web of interlacing black tissue. Congenital cysts of the lung should be treated by excision of the involved lung tissue as early as is feasible. Acquired cysts should be observed, since a majority disappear spontaneously. Treatment, when required, is conservative.

American Journal of Physiology, Baltimore

163:1-212 (Oct.) 1950. **Partial Index**

Cooling as Stimulus to Smooth Muscles. J. F. Perkins Jr., Mao-Chih Li, C. H. Nicholas and others.—p. 14.
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*I^{131} in Diagnosis and Treatment of Hyperthyroidism. R. A. Shipley, J. P. Storaasli, H. L. Friedell and A. M. Potts.—p. 576.
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Multiple Destructive Processes of Phalanges of Hand with Simultaneous Calcifications of Soft Tissues of Indefinite Etiology. F. Bohatirchuk.—p. 649.

Radioiodine (I^{131}) in Hyperthyroidism.—Shipley and co-workers administered radioiodine (I^{131}) by mouth to 15 euthyroid persons and to 46 patients with hyperthyroidism. Tracer doses for normal persons were 0.1 millicuries or less. Some of the patients with hyperthyroidism, who later were to receive therapeutic doses, received 0.25 or, rarely, 0.4 millicuries. Through the use of tracer doses of radioiodine, the high uptake and acelerated rate of accumulation that characterize the overactive thyroid were determined by assay of the urine, which was routinely collected in two separate 24 hour portions. The mean retention of radioiodine in euthyroid persons averaged 45 per cent; in the presence of thyrotoxicosis it was 83 per cent. There was much overlap among normal and thyrotoxic persons. In a subgroup of 28 patients with toxic goiter, the retention by direct count with a Geiger counter placed adjacent to the gland averaged 69 per cent as compared with 81 per cent when determined by urinary assay. Thyroid "collection rate" as determined by Keating and co-workers does not give a satisfactory differentiation of normal and thyrotoxic cases when it is calculated on the basis of two 24 hour urine samples collected during the first 48 hours. Adequate values for collection rate could be obtained if two or three separate collections were made during the first 12 to 24 hours. Twenty-nine patients with toxic diffuse goiter were treated with a mean dose of 95 microcuries of radioiodine per gram of thyroid. Of the 29 patients, 23 (78 per cent) responded well, four patients (15 per cent) failed to respond to a single dose, and the remaining two (7 per cent) had relapses. Myxedema occurred in four patients (15 per cent). The gland usually returned to normal size. Eighteen patients with nodular goiter were treated with a mean dose of 135 microcuries per gram. The disease was controlled in 15 of the 18 patients (83 per cent), and three (17 per cent) failed to respond. There were no cases of relapse or myxedema. The gland usually did not return to normal size. It was not possible to relate the occurrence of poor response or of myxedema to the size of the dose given, the severity of the disease or the size of the gland. Variations in response may be largely due to differences in rate of uptake among various follicles of the gland.

Vitamin D-Resistant Rickets.—Holt reports six children between the ages of 15 months and 5 years with rickets resistant or refractory to vitamin D. This rare metabolic disorder of childhood is a peculiar, apparently hereditary form of late rickets not associated with recognizable visceral disease and characterized by dwarfism, severe deformities, persistent hypophosphatemia and good therapeutic response only to large doses of vitamin D (50,000 to 1,000,000 units per day). Roentgenologically, refractory rickets has much the same appearance as other types of rickets. Roentgenologists should be thoroughly familiar with this disease, because it is usually on the basis of unequivocal roentgenographic signs that rickets is diagnosed. The physician who is unaware of a refractory type of the disease is likely to disregard the roentgenologic diagnosis of rickets in the face of a history of apparently adequate vitamin D intake or failure of the patient to respond to moderately large doses of the vitamin. The unwary roentgenologist may alter his initial diagnosis of rickets in the face of this seemingly overwhelming evidence against it. Consequently, the patient may be subjected to surgical procedures for correction of bowing and other deformities at a time when the rachitic process is still active. Once the diagnosis of refractory rickets is established and the administration of the tremendous doses of vitamin D necessary for a cure is started, careful supervision is essential for prevention of vitamin D intoxication.

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Technic for Early Operation of Myelocele and Meningomyelocele: with Report of 10 Consecutive Cases. W. R. Chambers.—p. 386.
*Protrusions of Intervertebral Discs: Study of Their Distribution, Characteristics and Effects on Nervous System. J. C. Haley and J. H. Perry.—p. 394.
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Tantalum Tubes in Non-Suture Method of Blood Vessel Anastomosis. E. W. Weiss and C. R. Lam.—p. 452.

Protrusions of Intervertebral Disks: Effects on the Nervous System.—A total of 99 spinal columns obtained from cadavers were studied by Haley and Perry. In 63 there were one or more protrusions of the intervertebral disk. Cervical protrusions were seen about twice as frequently as lumbar, which in turn were four times as numerous as thoracic protrusions. Nearly half the cases showed multiple involvement. Approximately half the protrusions were less than 2 mm. in diameter, the rest being about equally divided into medium-sized (2 to 4 mm.) and large-sized (4 to 7 mm.) protrusions. About a third of the protrusions showed bulging without rupture of the annulus fibrosus. In the cervical region these protrusions formed transverse ridges that encroached on the intervertebral foramina and vertebral canal. In the lumbar region they were nodular and usually encroached on the intervertebral foramen. Rupture of the annulus fibrosus and complete or partial extrusion of the nucleus pulposus was found in two thirds of the cases, and the protrusions and points of impingement did not greatly vary from those mentioned above. Compression of the intervertebral disk was greater when protrusions were ridgelike than when they were nodular. It was greater in actively mobile regions of the spinal column than in more stable regions. Greatly compressed disks did not necessarily result in nerve degeneration. Damage to the nervous system resulted from protrusions that narrowed the intervertebral foramina. Except for meningeal thickening, protrusions encroaching on the spinal canal produced no changes. Degeneration in the fasciculus cuneatus was associated with degeneration in the sensory roots at sites of disk protrusions. Dorsal spinocerebellar tract involvement was associated with stenosis or occlusion of spinal branches of the vertebral artery or aorta, resulting in a partial ischemia at levels affected by protrusions. There was no simple rule by which the amount of insult to the nervous system could be assessed. Size of the protrusion was important, but so also was location, especially with reference to the intervertebral foramen. The type of protrusion was an important factor in determination of damage to the nervous system.

Papillary Carcinoma of Thyroid.—Crile reviews the results of surgical intervention on 18 patients with papillary carcinoma of the thyroid with cervical metastases. Seven of the 18 patients had more than 15 metastatic nodules, and one had 40. All patients are well and apparently free of recurrence from six months to 13 years after operation, an average period of over five years. Papillary carcinomas of the thyroid commonly metastasize to the lateral cervical region, but unlike carcinoma occurring elsewhere, metastasis in this instance does not imply a poor prognosis. In Crile's experience the prog-

nosis in cases in which the chief symptom is lateral cervical metastasis has been much better than when the chief symptom is primary tumor in the thyroid. He mentions some peculiarities of papillary carcinomas of the thyroid that explain their unusual behavior and prognosis. In view of the benign behavior of these tumors and the excellent results of conservative operations designed to remove the involved groups of nodes, Crile does not believe that radical and mutilating block dissections, with removal of the sternocleidomastoid muscle, are necessary or desirable. This is particularly true in young women, in whom these tumors most frequently occur, and to whom cosmetic results are of the greatest importance. Removal of the lateral cervical metastases, individually or in groups through cosmetically planned incisions, offers as much possibility of cure as more radical operations. Roentgen therapy is rarely necessary and is rarely effective. Since most papillary carcinomas of the thyroid are curable by surgical excision, radioactive iodine has only a limited application. The author reports a case of papillary carcinoma with pulmonary and cervical metastases that regressed after treatment with radioactive iodine.

Annals of Surgery, Philadelphia

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Occurrence of Endocarditis with Valvular Deformities in Dogs with Arteriovenous Fistulas. C. W. Lillehei, J. R. R. Bobb and M. B. Visscher.—p. 577.

*Pulmonary Arteriovenous Aneurysm. G. E. Lindskog, A. Liebow, H. Kausel and A. Janzen.—p. 591.

Clinical Study of Respiratory Exchange During Prolonged Operations with Open Thorax. J. H. Gibbon Jr., F. F. Allbritten Jr., J. W. Stayman Jr. and J. M. Judd.—p. 611.

*Quantitative Studies on Mechanism of Gastric Secretion in Health and Disease. L. R. Dragstedt, E. R. Woodward, E. H. Storer and others.—p. 626.

Evaluation of End Results in Physiologic Versus Pathologic Operative Procedures for Chronic Duodenal Ulcer During Past Two Decades. J. W. Hinton.—p. 641.

Effect of Definitive Surgery on Duodenal Ulcer: Comparative Study of Surgical and Non-Surgical Management in 997 Cases. F. D. Moore, W. P. J. Peete, J. E. Richardson and others.—p. 652.

Definitive Treatment of Bleeding Peptic Ulcer. J. D. Stewart, I. Rudman, C. Citret and H. W. Hale Jr.—p. 681.

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*Acute Appendicitis III and Analysis of 1,003 Cases. J. C. Hawk Jr., W. F. Becker and E. P. Lehman.—p. 729.

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Surgical Treatment of Calcification of Pancreas. H. Doubilet and J. H. Mulholland.—p. 786

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Fractionated Intra-Arterial Cancer: Chemotherapy with Methyl Bis Amine Hydrochloride; Preliminary Report. C. T. Klopp, T. C. Alford, J. Bateman and others.—p. 811.

Carcinoma of Breast: Fifty Years' Experience at Massachusetts General Hospital. G. W. Taylor and R. H. Wallace.—p. 833.

Pulmonary Arteriovenous Aneurysm.—Lindskog and his associates say that, although pulmonary arteriovenous aneurysm was recognized at autopsy in 1897, correlation of this lesion with a clinical syndrome leading to diagnosis during life was not made until 1939. The first successful surgical treatment, total pneumonectomy, was done in 1942. Since then, over 50 cases have been recorded, and treatment in many of them was surgical. The previous confusion of this lesion with congenital cyanotic heart disease, polycythemia vera and various benign lung tumors has delayed their recognition and appropriate surgical treatment. The authors report four cases. In one case, a young man, during routine roentgen examination for army service, was referred to the hospital with presumed minimal pulmonary tuberculosis involving the left upper lobe. Results of tuberculin tests were negative. Chest films indicated enlargement of the pulmonary vascular shadow in the left hilum extending as a tapering shadow into the apex. Laminagraphic studies confirmed this impression. Angiocardiograms demonstrated the vascular character of the lesion. The patient had four years of combat duty in Europe. Chest roentgenograms in 1949 were unchanged as compared with those taken eight years previously. The Valsalva and Müller signs were both positive. A diagnostic pneumothorax showed a separation from the parietal pleura of the upper lobe and its lesion. The operation was done through the fifth intercostal space. A large, pulsatile vascular tumefaction of the upper lobe was discovered, and lobectomy was carried out. The patient was well when seen four months after operation. Successful lobectomy was done in two other cases. The essential factors in the diagnosis of pulmonary arteriovenous aneurysm are cyanosis and clubbing of the digits, in the presence of a normal heart, together with roentgenographic findings of a vascular tumefaction in the lung. Bleeding from the nose is common. Hemoptysis may be lethal. There may be headache, vertigo, weakness, syncope, convulsions, paresis or paresthesia of the extremities, dysphagia and thickness of speech. There is an increase in the erythrocyte count and in the hemoglobin content. The total blood volume in the polycythemic cases is elevated, but the plasma volume shows little or no increase in contradistinction to the observation in peripheral arteriovenous fistula. The peripheral arterial oxygen saturation is usually decreased. Surgical treatment has varied from simple ligature of the supplying arteries, local dissection and lobectomy to total pneumonectomy. Anomalous vascular patterns must be watched for in the dissection of the involved lobes. A high incidence of cutaneous, mucosal and visceral angiomas, frequent occurrence of telangiectasia or recurrent epistaxis in parents or siblings, pulmonary arteriovenous aneurysm in siblings, point toward the hereditary nature of these pulmonary lesions and their identification as a variant of Rendu-Osler-Weber disease (hereditary hemorrhagic telangiectasia).

Quantitative Studies on Gastric Secretion.—Dragstedt and his co-workers say that their development of a method for the complete collection of gastric secretion from Pavlov pouches and from totally isolated stomach pouches for long periods of time has made it possible to restudy the mechanisms of gastric secretion from the quantitative point of view. They arrive at the following conclusions: 1. Complete division of the vagus nerve supply to the isolated stomach of dogs reduces the output of hydrochloric acid by an average of 76 per cent. This reduction, which is maintained for at least two years, may also be secured by crushing of the vagi above the diaphragm. 2. Complete removal of the antrum of the stomach in dogs with Pavlov pouches decreases the output of hydrochloric acid from the pouch by an average of 86 per cent. This reduction persisted for two years. 3. Removal of one-half or two-thirds of the antrum does not decrease the secretion of gastric juice in dogs with Pavlov pouches, but subsequent removal of the remnant produces a pronounced decrease in the secretion. 4. Exclusion of the antrum of the stomach in dogs with Pavlov pouches by a method similar to that of Finsterer and Devine produces no reduction in pouch secretion in 50 per cent of cases and a moderate to pronounced reduction in the remainder. 5. Exteriorization of the antrum of the stomach so that it does not come in contact with food produces a decrease in secretion comparable to that secured by antrum resection. Subsequent transplantation of the exteriorized antrum into the duodenum brings about a return of secretion from the Pavlov pouch to the original level. 6. Transplantation of the antrum of the stomach into the colon as a diverticulum causes persistent hypersecretion of gastric juice from the Pavlov pouch. 7. The antrum in totally isolated stomach preparations has no effect on gastric secretion when exposed only to gastric juice but causes a profound stimulation when transplanted into the duodenum or colon. 8. Transplantation of a portion of the fundus of the stomach into the duodenum has no stimulating effect on the secretion of gastric juice. 9. These observations demonstrate that the antrum of the stomach accounts for the gastric phase of secretion, that its mucous membrane is highly specific in function and differs in this respect from that of the fundus or the intestines. 10. The data are in harmony with the view that the antrum is an internally secret-

ing organ that elaborates a powerful gastric stimulant (the gastrin of Edkins) when it comes into contact with food or products of digestion. 11. In normal dogs, the nervous mechanism of secretion probably accounts for 45 per cent of the total gastric juice secreted in 24 hours, the antrum phase 45 per cent and the intestinal phase 10 per cent or less. 12. In duodenal ulcer patients, the fasting nocturnal secretion of gastric juice is from three to four times greater than normal, and these patients secrete about twice as much acid in response to insulin hypoglycemia or histamine. 13. Following complete vagotomy, the response to insulin hypoglycemia is abolished, the response to histamine decreased 60 to 80 per cent and the fasting secretion of hydrochloric acid reduced to one-fifth of the previous level. 14. In duodenal ulcer patients, the nervous phase of secretion probably accounts for 80 per cent of the gastric juice secreted, the antrum phase 15 per cent and the intestinal phase 5 per cent.

Acute Appendicitis.—Hawk, Becker and Lehman present an analysis of 1,005 consecutive cases of acute appendicits that were observed at the University of Virginia Hospital during the years 1943-1948. These cases are compared with an earlier series of 1,069 cases observed from 1933 to 1937. The total mortality was 0.8 per cent, as compared with the 3.27 per cent for the 1933-1937 series. The data do not suggest a real difference in the severity of the disease during the two periods under consideration. In a preliminary report the decrease in mortality was ascribed in part to chemotherapy and antibiotic agents, especially streptomycin. The differences in the results of conservative and surgical treatment in localized peritonitis are minor. Immediate operation in diffuse peritonitis appears to be twice as effective as conservative treatment, but this difference is not statistically significant. Under modern conditions, when conservative treatment includes the new supportive measures, chemotherapy and antibiotics, no definite conclusions can be formulated with regard to the choice between these measures or immediate operation in the case of appendiceal peritonitis, but further experience may show superiority of immediate operation over conservative treatment.

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Superficial Cutaneous Inflammation in Regions of Eyes and Ears. M. E. Obermayer and E. T. Fox.—p. 583.
Management of Abnormal Genital Bleeding. G. V. S. Smith.—p. 588.
Surgical Construction of Artificial Vagina. P. Horn.—p. 591.
*Rational Approach to Problems in Functional Sterility. S. J. Glass.—p. 599.
Differential Diagnosis of Granulomata of Colon. C. A. Kruse and A. R. Bleich.—p. 603.

Functional Sterility.—According to Glass, functional impairment of fertility may arise from many different sources. Pure endocrinopathies are the sole cause of infertility in only a minority of cases. Many disorders of reproductive function may be traced to nutritional deficiencies. The quantity of such trace substances in the diet as folic acid, biotin and methionine may affect reproductive function. Minute amounts of iodine in the diet make the difference between metabolic equilibrium and metabolic failure. The chick or monkey deficient in folic acid cannot respond to even maximal doses of estrogen. Another aspect of reproductive physiology that has been neglected in the clinical management of infertility is the influence of the liver on the metabolism of the gonadal hormones. The liver plays a vital role in the inactivation of these steroid hormones, and this liver function is a prerequisite to the normal pituitary-gonadal relation. Emotional factors may also play a part. A more comprehensive evaluation of the barren couple is needed as well as a more all-inclusive type of therapy. Such a regimen should include: (1) application of optimum hygienic principles of sex life and of nutrition, with special emphasis on the treatment of liver dysfunction, when it exists, rather than on treatment of the gonads; (2) rational choice of hormonal and organotherapy, if such is indicated, and (3) provision of intensive psychotherapy whenever emotional tension becomes apparent.

California Medicine, San Francisco

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*Prevention of Fluid-Electrolyte "Problem" by Simple Means. R. P. Lyon.—p. 303.
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*Distribution of Coccidioidomycosis in Southern California. J. F. Kessel, M. Biddle, H. A. Tucker and A. Yeaman.—p. 317.

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Contribution of Cerebral Angiography in Diagnosis. R. B. Raney and A. A. Raney.—p. 342.
Adaptation of Electroencephalography to Medicine. C. L. Yeager.—p. 350.
Diagnostic Contributions of Electromyogram. J. G. Golseth.—p. 355.

The Fluid-Electrolyte Problem.—Lyon shows that the proper fluid balance may be maintained in patients after operation by the use of simple, inexpensive procedures that may be carried out even in the smallest of hospitals. Daily weighing of patients, measurement of fluid intake and output and knowledge of the probable electrolyte content of fluid losses are adequate guides for replacement of fluids and electrolytes. An increase in body weight is a warning of overhydration. The content of the solution used for replacement is dictated by the route of fluid output. Adequate replacement solutions are, for insensible losses, dextrose in water; for gastrointestinal losses, 6 Gm. of sodium chloride per liter of water to replace the first 6 liter of fluid lost. Following this, 1 Gm. of potassium chloride plus 1 Gm. of calcium gluconate (10 cc. of 10 per cent solution) is added to each liter. To replace loss by perspiration, 0.45 per cent solution of sodium chloride should be given, and for loss by urinary excretion administration of dextrose in water is advised during the first 48 hours after operation. With a urine volume of 2 liters and adequate kidney function, 1 liter of 0.45 per cent solution of sodium chloride should be given daily thereafter, in addition to dextrose in water. Use of isotonic sodium chloride (0.9 per cent) solution parenterally is contraindicated in the absence of extrarenal salt losses during the early postoperative period.

Distribution of Coccidioidomycosis in Southern California.—Kessel and his collaborators point out that for years it was assumed that coccidioidomycosis was acquired almost exclusively in the San Joaquin Valley of California. Other parts of the Pacific Southwest of the United States eventually were recognized to be endemic areas. In 1943 the Office of the Surgeon General, U. S. Army, prepared a distribution map of the known and suspected areas of coccidioidomycosis. The region of California south of the San Joaquin Valley was depicted in the map only as an area of suspected endemicity. Other observations led to the organization of serial skin test and serial complement fixation test surveys. In coccidioidin skin test surveys among persons of high school age in the Saugus, Canoga Park, Banning and Palm Springs areas the average incidence of positive reaction was 15 per cent. Although much less than the 68 per cent incidence reported among high school students of Kern County, it is high enough to indicate pockets of relatively high endemicity in Southern California below the San Joaquin Valley. Histoplasmin tests were performed on most of the persons tested with coccidioidin in this survey. The over-all incidence of positive reaction in the group was 7.6 per cent. Most of the subjects with positive reaction to histoplasmin had previously lived in some area in the central United States where histoplasmosis is known to be endemic. A few persons with a positive reaction to coccidioidin tests who had lived in areas known to be endemic for coccidioidomycosis but not for histoplasmosis also had a positive reaction to histoplasmin. However, the

induration produced was always smaller than that caused by the coccidioidin reaction, and there was minimal confusion in interpreting the tests. In the Los Angeles County Hospital, 15 patients with proved active coccidioidomycosis recently were tested with both coccidioidin and histoplasmin. None of the 15 patients had previously lived in a known histoplasmosis area. All had positive reaction to coccidioidin and none had a positive reaction to histoplasmin. This observation further supports the thesis that coccidioidin and histoplasmin reactions are easily differentiated.

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Series of Thoracoplasties. E. Harrison and J. C. Kovach.—p. 376.
General Practitioner and His Neighbourhood Hospital. W. V. Johnston.—p. 377.

Vagotomy in Duodenal Ulcer.—Of 75 patients who have undergone vagotomy since June 1946, 28 underwent transthoracic or transabdominal supradiaphragmatic vagotomy only, 34 underwent posterior gastroenterostomy plus vagotomy; 11 had pyloroplasty plus vagotomy and two had partial gastric resection plus vagotomy. Fifty patients have been followed after vagotomy for duodenal ulcer for one to three years. Vagotomy alone has been successful in 66.6 per cent of the cases to date. Posterior gastroenterostomy combined with vagotomy including vagotomy for previously performed gastroenterostomy with complications, has been satisfactory in 88 per cent. Excluding previously complicated gastroenterostomy, results following gastroenterostomy plus vagotomy have been 100 per cent satisfactory. These short term results are better than would be expected following subtotal resection or gastroenterostomy. There have been no jejunal ulcers and no fatalities. There has been a pronounced drop in postoperative bleeding. The failures, and possibly some of the poor results, were due to incomplete vagotomy. The insulin test has not been helpful in prognosticating clinical results. The authors do not claim that gastroenterostomy plus vagotomy will prove ultimately better than other surgical procedures for intractable duodenal ulcers.

Congenital Tuberculosis.—Robertson and Sullivan report the history of a male infant born of a mother with advanced pulmonary tuberculosis. The placenta was not saved, but nodulation was felt in the placenta and cord. The mother died 20 days after the delivery. The child was removed from the mother immediately after birth and was never thereafter in contact with her or any other person known to be tuberculous. The child died 31 days after birth, and postmortem examination disclosed widespread miliary tuberculosis of lungs, liver, spleen, kidney and adrenals and massive caseous tuberculosis of abdominal lymph nodes, terminal pulmonary congestion and marasmus. Diagnosis of congenital tuberculosis is difficult and is usually made after death. There are no typical clinical signs. The spleen is usually enlarged, especially in the miliary type. Results of the tuberculin test are usually negative, as in the reported case, either because a specific allergy has not yet developed or because there is a negative anergy. The infection occurs before birth by way of the blood stream (umbilical vein), or at birth by the aspiration of tuberculous amniotic fluid or tuberculous matter present in the birth canal, or by both.

Cancer Research, Chicago

10:587-658 (Oct.) 1950. **Partial Index**

Nucleic Acids in Relation to Tissue Growth: Review. J. N. Davidson and I. Leslie.—p. 587.
Inhibition of Plant Growth by Irradiation: V. Radiation Effects on Initiation and Completion of Growth. H. Quastler and M. Baer.—p. 604.
Effect of Nitrofurazone on Growth of Fibrosarcoma in Mice. C. E. Friedgood and M. N. Green.—p. 613.
Distribution of Radioactivity Following Feeding of Carbon 14-Labeled 2-Acetylaminofluorene to Rats. H. P. Morris, J. H. Weisburger and E. K. Weisburger.—p. 620.
Transplantable Nephroblastoma (Wilms's Tumor) and Other Spontaneous Tumors in Colony of Rats. C. T. Olcott.—p. 625.
*Beryllium and Growth: I. Beryllium-Induced Osteogenic Sarcomata. M. B. Hoagland, R. S. Grier and M. B. Hood.—p. 629.
Citric Acid Metabolism in Carcinogenesis and Its Relationship to Calcium Metabolism. H. Miller and C. Carruthers.—p. 636.
Uptake and Distribution of Radioactive Phosphorus in Chicken Eggs Containing Rapidly Growing Mammary Tumor of C3H Mouse. I. Galinsky.—p. 642.
Studies on Distribution of Radioactive 8-Azaguanine (Guanazolo) in Mice with Eo771 Tumors. L. L. Bennett Jr., H. E. Skipper, J. H. Mitchell Jr. and K. Sugiura.—p. 644.
Investigation of Nucleic Acids of Viscera in Tumor Tissue from Animals Injected with Radioactive 8-Azaguanine. J. H. Mitchell Jr., H. E. Skipper and L. L. Bennett Jr.—p. 647.
Comparison of Intracellular Composition of Regenerating Liver and Induced Liver Tumors. J. M. Price and A. K. Laird.—p. 650.

Beryllium-Induced Osteogenic Sarcoma.—Hoagland and his associates point out that Gardner in 1946 discovered that intravenous administration to the rabbit of certain beryllium-containing powders led to the development of osteogenic sarcoma. The production of such tumors has been confirmed in the laboratory with which the authors are connected. Twenty-four rabbits were given injections of insoluble beryllium compounds, such as beryllium phosphate, zinc beryllium silicate and beryllium oxide. Osteogenic sarcoma developed in seven of the 24 animals from 11 to 24 months after the injection. These tumors were highly malignant and metastasized rapidly. Seven other rabbits that had received injections and were apparently dying of unrelated causes were found to have remarkably fibrotic and contracted livers. It was not possible to transplant these tumors. The serum alkaline phosphatase activity rose rapidly, paralleling the spread of the tumor throughout the body. The activity of this enzyme in the tumor tissue itself was extremely high. It is not known whether a local physical irritation factor of an insoluble powder is an adjuvant to the chemical action of ionic beryllium. Soluble salts of beryllium have not produced tumors. Beryllium compounds have been injected into rabbits, rats and guinea pigs, and of these the rabbit is apparently the only susceptible species. Elucidation of the metabolic differences between the rabbit and other mammals might shed light on the mechanism of the response. The only well defined biochemical action of beryllium known is its inhibition of alkaline phosphatase in vitro. The action of beryllium on normal bone phosphatase may have been initially important in tumor induction. Further knowledge of the mechanism involved here depends on clarification of the general significance of phosphatases. Magnesium was found to activate, and beryllium to inhibit, the phosphatase associated with sarcoma in the same manner that these metals affect normal alkaline phosphatase.

Circulation, New York

2:641-800 (Nov.) 1950

Fourth Walter Wile Hamburger Memorial Lecture, Institute of Medicine of Chicago: Some Aspects of Pulmonary Circulation in Normal Man and in Chronic Cardiopulmonary Diseases. A. Cournand.—p. 641.
Synthetic Anticoagulant: Polysulfuric Acid Ester of Polyanhydromannuronic Acid (Paritol): Experience with Its Use in Man. C. W. Sorenson and I. S. Wright.—p. 658.
*Increasing Bacterial Resistance to Antibiotics: Study of 46 Cases of Streptococcus Endocarditis and 18 Cases of Staphylococcus Endocarditis D. C. Levinson, G. C. Griffith and H. E. Pearson.—p. 668.
Spatial Vector Electrocardiography: Method for Calculating Spatial Electrical Vectors of Heart from Conventional Leads. R. P. Grant.—p. 676.
*Diet, Serum Cholesterol and Coronary Artery Disease. M. M. Gertler, S. M. Garn and P. D. White.—p. 696.
Production of Experimental Cholesterol-Induced Atherosclerosis in Chicks with Minimal Hypercholesterolemia and Organ Lipidosis. J. Stamler and L. N. Katz.—p. 705.
Effect of Choline and Inositol on Plasma and Tissue Lipids and Atherosclerosis in Cholesterol-Fed Chick. J. Stamler, C. Bolene, R. Harris and L. N. Katz.—p. 714.
Effect of Choline and Inositol on Plasma and Tissue Lipids and on Spontaneous and Stilbestrol-Induced Atherosclerosis in Chick. J. Stamler, C. Bolene, R. Harris and L. N. Katz.—p. 722.
Fifteen Years of Progress in Cardiovascular Disease: Role of the American Heart Association in Research. E. V. Allen.—p. 726.
The American Heart Association as National Voluntary Public Health Agency. W. P. Shepard.—p. 736.
Action of Cardiac Glycosides on Experimental Auricular Flutter. A. Farah and T. A. Loomis.—p. 742.
Renal Excretion of Digitoxin in Normal Subject After Single and Continuous Administration of Drug. M. Friedman, R. Bine Jr., S. O. Byers and C. Bland.—p. 749.
Empiric Approach to Interpretation of Low Frequency, Critically Damped Ballistocardiogram. R. J. Jones and N. E. Goulder.—p. 756.
Analysis of H Wave of Ballistocardiogram. V. de Lalla Jr., M. A. Epstein and H. R. Brown Jr.—p. 765.
Cardiac Performance Capacity and Effect of Exercise on Renal Plasma Flow in Aortic Insufficiency. T. B. Gibbons, A. Henschel, H. L. Taylor and C. B. Chapman.—p. 770.

Increasing Bacterial Resistance to Antibiotics.—Levinson and co-workers report on 64 patients with bacterial endocarditis. Forty-six (72 per cent) were infected by a streptococcus and the remaining 18 by a staphylococcus. Penicillin was administered to the patients by continuous intramuscular drip for 21 days, in doses calculated to produce blood levels four to five times that required for in vitro inhibition. Of the patients with streptococcic endocarditis, 37 (80 per cent) were cured and nine (20 per cent) died during treatment. The cause of death was heart failure, cerebral embolus, myocardial infarction, uremia and sepsis. In addition, of the 37 patients who were cured, five died of congestive heart failure after completion of therapy. In nine patients (20 per cent) the streptococcus was observed to be relatively resistant to penicillin, requiring from 1.5 to 25 units of penicillin per cubic centimeter of culture for in vitro inhibition. Five of these patients were cured and four died. The dosage of penicillin used in these four was thought to have been adequate and varied from 800,000 to 8,000,000 units daily. However, all the patients who were cured received 20,000,000 units daily. This latter dose, continued for at least six weeks, is recommended in penicillin-resistant streptococcic endocarditis. Results of aureomycin sensitivity tests suggest that this drug may prove of value in streptococcic endocarditis. Of the 18 patients with staphylococcic endocarditis 12 (66 per cent) died. In vitro bacterial sensitivity studies were done in 15 of the 18 patients. In nine of the 15 (66 per cent) the infecting organisms were resistant to penicillin and required from 1 to 200 units of penicillin per cubic centimeter of culture for inhibition. The degree of penicillin resistance was greater with staphylococcic than with streptococcic endocarditis. Aureomycin was effective in two instances of penicillin-resistant staphylococcic endocarditis, and increasing resistance to aureomycin developed during therapy in a third patient.

Diet, Serum Cholesterol and Coronary Artery Disease.—Gertler and co-workers obtained dietary information, with emphasis on cholesterol and purines, by the personal questionnaire method from 139 healthy active men employed by an industrial plant and from 90 men who had experienced myocardial infarction prior to the age of 40 years. The average amount of cholesterol ingested per week by the healthy men and by the patients with coronary disease was 3.88 ± 1.46 Gm. and 3.30 ± 1.41 Gm. respectively. The coefficients of correlation between serum cholesterol and ingested cholesterol were $+0.05 \pm 0.11$ and -0.09 ± 0.08 for the control group and the coronary disease group respectively. This indicates that for the two groups in question and the amounts of cholesterol in consideration, there is no definite relation between the amount of cholesterol ingested and the level of cholesterol in the serum. From this study and other dietary studies made in the authors' laboratory, it is concluded that no advantage is to be gained from a low cholesterol diet for patients with coronary artery disease.

Delaware State Medical Journal, Wilmington

22:283-310 (Oct.) 1950

Comments on Management of Hypertension. L. B. LaPlace.—p. 283.
Management of Potassium Disturbances in General Hospital. J. R. Durham and W. C. Blase.—p. 291.
Cystosarcoma Phyllodes: Report of Case Showing Regional Recurrence and Distant Metastasis. J. C. Pierson.—p. 296.
Relation of Follicular Lymphoblastoma, Lymphosarcoma and Hodgkin's (Reticulum Cell) Sarcoma: Case Report. J. K. Harvey and J. W. Hooker.—p. 299.
*Bowen's Disease of Skin: Associated with Squamous Cell Carcinoma of Skin, with Metastasis to Axillary Lymph Nodes: Case Report. L. C. Strong Jr. and A. Iddles.—p. 302.
Creatine Excretion in Acute Poliomyelitis: Preliminary Report. G. J. Boines and J. C. Kakavas.—p. 304.

Bowen's Disease of Skin.—Scaly lesions with a reddish base developed on the trunk and upper extremities of a woman aged 70 a year previous to hospitalization. These lesions increased in diameter and in the height of the scale covering them. Three to four months before admission a lesion below the left breast ulcerated and bled continuously, and a lump appeared in the left axilla. On examination the cutaneous lesions were found to be typical Bowen's disease or intraepithelial carcinoma, and the lesion beneath the breast, squamous cell carcinoma of the skin that had metastasized to the axillary lymph nodes. This was substantiated by biopsies. Radical mastectomy was done, the incision extending downward to the lesion described above. The inferior point of the incision was within 2 cm. of the anterior iliac spine. The en bloc dissection included the breast, pectoralis major and minor muscles, axillary lymph nodes and the sheath of the rectus muscle, which was beneath the neoplastic mass. A full drum, split thickness skin graft was applied to the defect. Fourteen days after operation, 95 per cent of the skin graft had taken satisfactorily. When the history and clinical and pathological observations are correlated, it seems probable that this patient originally had Bowen's disease which later developed into invasive squamous cell carcinoma and metastasized to the left axilla. Surgical excision is the best treatment for Bowen's disease; radiation is contraindicated, because the lesions are similar to early radiation epithelioma.

Georgia Medical Association Journal, Atlanta

39:399-434 (Oct.) 1950

Peritoneal Drainage. J. B. Stewart.—p. 399.
Color of Feces Following Instillation of Citrated Blood at Various Levels of Small Intestine. J. H. Hilsman.—p. 402.
Gastrointestinal Allergy: Remissions in Chronic Eczema Following Administration of Phthalanilic Acid. J. L. Jacobs.—p. 405.
Carbohydrate Studies in Patients with Addison's Disease Treated with Testosterone Propionate and Cortisone. H. E. Cluxton Jr.—p. 408.

GP (J. Am. Acad. of Gen. Practice), Kansas City, Mo.

2:1-162 (Oct.) 1950

Obesity in Children. I. McQuarrie.—p. 35.
Sodium Pentothal in Obstetrics. A. L. Berman.—p. 39.
Hormone Therapy in Uterine Bleeding. E. C. Reifenstein Jr.—p. 45.
Carcinoma of Prostate. J. A. C. Colston.—p. 53.
The Art of Interviewing. I. Stevenson and R. A. Matthews.—p. 59.

Hawaii Medical Journal, Honolulu

10:1-80 (Sept.-Oct.) 1950

Surgeon's Responsibility in Care of the Cancer Patient. G. T. Pack.—p. 19.
Study of Thyroid Disease in Hawaii. G. C. Freeman.—p. 27.
Food Values of Hawaiian-Grown Fruits and Vegetables. C. D. Miller—p. 34.

Iowa State Medical Society Journal, Des Moines

40:471-512 (Oct.) 1950

*Tracheotomy in Bulbar Poliomyelitis. J. R. Mitchell and L. F. Hill. —p. 471.
Some Mechanical Tracheotomy Problems in Bulbar Poliomyelitis. J. A. Downing, B. M. Merkle, H. J. McCoy and D. A. Shrader.—p. 479.
Use and Abuse of Thyroid Therapy. J. A. Greene.—p. 482.
Earlier Diagnosis of Carcinoma of Cervix Uteri. O. F. Kraushaar, J. G. Moore and G. S. Pettis.—p. 485.
Evaluation of Treatment of Herpes Simplex Cornea with Newer Antibiotics. A. E. Braley.—p. 486.
Trends in Internal Medicine—1949. D. A. Glomset.—p. 490.

40:513-548 (Nov.) 1950

Cancer of Colon and Its Early Diagnosis. W. G. Scott.—p. 513.
Fracture of Distal End of Radius. F. A. Chandler.—p. 518.
Early Diagnosis of Congenital Dislocation of Hip. I. V. Ponseti.—p. 520.
Mixed Tumors of Salivary Glands. W. A. Kirch.—p. 522.
Multiple Myeloma and Plasma Cell Leukemia: Case Report. R. H. Bickford and W. M. Fowler.—p. 527.

Tracheotomy in Bulbar Poliomyelitis.—Mitchell and Hill discuss the controversial issues concerning the role of tracheotomy in the treatment of bulbar poliomyelitis. Some hold that tracheotomy is seldom if ever indicated, and others feel that tracheotomy is life saving. A second controversial issue concerns the cause of death. Overwhelming infection of the brain stem involving the respiratory and circulatory centers is the mechanism in the opinion of many; others maintain that respiratory obstruction with anoxia and probably carbon dioxide excess is the cause. Galloway and Seifert, and Baker, agree on three of the types of the classifications of bulbar poliomyelitis: spinal, bulbar and a combination of the two. In regard to the fourth type, Galloway and Seifert believe that the symptoms ascribed to polioencephalitis in Baker's classification can best be explained on the basis of carbon dioxide excess and oxygen lack, and that death in poliomyelitis is the result of respiratory obstruction rather than of overwhelming infection in the brain stem. Mitchell and Hill say that it is impossible to reach a decision as to whether the Baker theory or that of Galloway and Seifert is correct and that hypoxia and probably hypercapnea are constant threats. They feel that tracheotomy is an effective means of combating these threats. The authors did their first tracheotomy for bulbar poliomyelitis in 1947, and the patient has recovered. Their confidence was jolted in the 1948 epidemic when all four patient who were subjected to tracheotomy died. In 1949 they observed 39 bulbar cases. Ten tracheotomies were done, with four deaths. It is not certain that the six survivors lived because of the tracheotomy, but it was the impression of all who saw them that the operation was life saving. Selection of patients for tracheotomy still presents some difficulties.

Journal of Applied Physiology, Washington, D. C.

3:173-228 (Oct.) 1950

Influence of Various Environmental Temperatures on Cold and Warmth Thresholds. F. G. Ebaugh Jr. and R. Thauer.—p. 173.
Auricular Flutter Studied in Direct Leads from Human Heart. F. M. Groedel and M. Miller.—p. 183.
Effect of High and Low Oxygen Levels and Intermittent Positive Pressure Breathing on Oxygen Transport in the Lungs in Pulmonary Fibrosis and Emphysema. H. L. Motley and J. F. Tomashefski. —p. 189.
Normal Values for Serum Cholesterol and Basal Metabolic Rates and Their Correlation in Normal Man. A. L. Peeler, O. E. Hepler, V. M. Kinney and others.—p. 197.
*Physiological Effects and Possible Methods of Reducing Symptoms Produced by Rapid Changes in Speed and Direction of Airplanes as Measured in Actual Flight. J. R. Poppen and C. K. Drinker.—p. 204.
Spontaneous Equilibration of Inspired CO_2 with Mixed Venous Blood: Some Theoretical Considerations. C. A. Forssander.—p. 216.

Symptoms from Changes in Speed and Direction of Airplanes.—Poppen and Drinker anesthetized dogs and mounted them in an airplane in a position similar to that occupied by the aviator and subjected them to rapid horizontal turns and to dives. Records of arterial pressure were made during these maneuvers. A drop in arterial pressure occurred that was directly proportional to the severity and time of application of the abnormal forces. This causes a severe cerebral anoxemia, which accounts for the symptom of blackout. Other dogs were mounted in an airplane in a similar manner and direct records were taken from the carotid artery, the jugular vein and the femoral artery and vein. They were flown through horizontal turns and dives. A belt embracing the abdomen and containing an inflatable bag was strapped about the dog. Inflation of this bag produced an increase in intra-abdominal pressure. This was done at different times in relation to the maneuvers. Raising of the intra-abdominal pressure shortly before or during the high acceleration produced no material improvement in the physiological changes. Raising of this pressure at least one-half minute before the high accelerations preserved carotid cerebral circulation at a level above that resulting in severe anoxemia and consistent with freedom from subjective symptoms. Raising of the pressure at least one-half minute before subjection to high accelerations should relieve an aviator of the symptoms experienced as a result of these accelerations. Preliminary trials on aviators, with use of a crude type of belt, produced results justifying this conclusion.

Journal of Aviation Medicine, St. Paul

21:359-444 (Oct.) 1950

Sensibility of Man to Light Anoxia. L. P. Dugal and P. E. Fiset. —p. 362.
Evaluation of Present-Day Knowledge of Cosmic Radiation at Extreme Altitude in Terms of Hazard to Health. H. J. Schaefer.—p. 375.
Possible Methods of Producing Gravity-Free State for Medical Research. F. Haber and H. Haber.—p. 395.
Electrical Activity and Oxygen Tension of Brain During Hyperoxic Convulsions: Experimental Method and Results. S. N. Stein and R. R. Sonnenschein.—p. 401.
Role of Metabolism in Acclimatization of Albino Rats to Reduced Barometric Pressure. J. L. Lipin and W. V. Whitehorn.—p. 405.
Protective Helmets—Their Integration with Other Equipment. J. C. Poppen and E. L. Hendler.—p. 414.
Problems in Assessing Winter Flying Clothing. N. C. Law, L. A. Wright and C. C. Gotlieb.—p. 419.
*Evaluation of Some Drugs in Motion Sickness. H. I. Chinn, B. A. Strickland, F. W. Oberst and others.—p. 424.
Naval Aviation Medicine. B. Groesbeck Jr.—p. 430.

Drugs in Motion Sickness.—Chinn and his associates tested a number of antihistaminic and antispasmodic drugs for their effectiveness in prevention of motion sickness produced by simulated turbulence in the airplane, training flights and the swing. A mixture of 50 mg. of diphenhydramine hydrochloride (benadryl®) with 0.65 mg. of scopolamine was shown to be the most effective. Scopolamine (hyoscine) aminoxide (scopodex®) is of the same order of effectiveness. Dimenhydrinate (dramamine®), diphenhydramine hydrochloride, scopolamine and a mixture of half-doses of diphenhydramine hydrochloride plus scopolamine afford good prophylaxis. Several drugs giving fair, slight or no protection are listed. The authors state that effective prevention of motion sickness is not related to antihistamine potency. It is probable that the degree of central anticholinergic action determines in large part the effectiveness of the drug, although other actions cannot be excluded. All strongly effective compounds in the antihistamine group have two carbocyclic rings attached directly to a common carbon.

Journal of Bacteriology, Baltimore

60:369-510 (Oct.) 1950. **Partial Index**

Inhibition of Growth of Aerobacter Aerogenes: Mode of Action of Phenols, Alcohols, Acetone, and Ethyl Acetate. S. Dagley, E. A. Dawes and G. A. Morrison.—p. 369.
Beta-d-Galactosidase of Escherichia Coli, Strain K-12. J. Lederberg. —p. 381.
Metabolic Studies on T2 Escherichia Coli Bacteriophage. S. J. Ajl. —p. 393.
Ion Antagonisms in Microorganisms: Interference of Normal Magnesium Metabolism by Nickel, Cobalt, Cadmium, Zinc, and Manganese. P. H. Abelson and E. Aldous.—p. 401.
Oxidative Dissimilation of Amino Acids and Related Compounds by Brucella Abortus. P. Gerhardt, H. B. Levine and J. B. Wilson. —p. 459.
In Vitro Effect of Analogs of Vitamin K on Mycobacterium Tuberculosis Var. Hominis, Strain H37Rv. A. Kimler.—p. 469.
Relationship Between Immobilizing and Spriocheticidal Antibodies Against Treponema Pallidum. F. A. Thompson Jr., B. G. Greenberg and H. J. Magnuson.—p. 473.
Evaluation of Coagulase Test in Study of Staphylococci Associated with Food Poisoning. J. B. Evans, L. G. Buettner and C. F. Niven Jr. —p. 481.

Journal of Clinical Investigation, Cincinnati

29:1261-1420 (Oct.) 1950

Role of Vestibular Apparatus in Production of Nausea and Vomiting Following Administration of Morphine to Man: Clinical and Experimental Data Including Effects of Dramamine and Benzedrine. A. Rubin and J. Winston.—p. 1261.
Blood Volume Studies in Shock Resulting from Myocardial Infarction: I. Studies with Evans Blue Dye (T-1824). C. M. Agress, M. Rosenburg, A. Schneiderman and E. J. Brotman.—p. 1267.
Measurement of Exchangeable Potassium in Man by Isotope Dilution. L. Corsa Jr., J. M. Olney Jr., R. W. Steenburg and others.—p. 1280.
Measurement of Total Body Water in Human Subject by Deuterium Oxide Dilution; with Consideration of Dynamics of Deuterium Distribution. P. R. Schloerb, B. J. Friis-Hansen, I. S. Edelman and others.—p. 1296.
Use of Mass Spectrometer to Measure Deuterium in Body Fluids. A. K. Solomon, I. S. Edelman and S. Soloway.—p. 1311.
Nature of Renal Circulatory Changes in Chronic Congestive Failure as Reflected by Renal Tubular Maximal Functions. J. Grossman, R. E. Weston, J. P. Halperin and L. Leiter.—p. 1320.
Cerebral Blood Flow and Oxygen Consumption in Neurosyphilis. J. L. Patterson Jr., A. Heyman and F. T. Nichols Jr.—p. 1327.
Effects of Induced Fever on Cerebral Functions in Neurosyphilis. A. Heyman, J. L. Patterson Jr. and F. T. Nichols Jr.—p. 1335.
Minimal Sodium Losses Through Skin. K. D. Arn and A. Reimer. —p. 1342.
*Concentration of Cholesterol in Blood Serum of Normal Man and Its Relation to Age. A. Keys, O. Mickelsen, E. v. O. Miller and others. —p. 1347.
Studies on Autonomic Blockade: I. Comparison Between Effects of Tetraethylammonium Chloride (TEAC) and High Selective Spinal Anesthesia on Blood Pressure of Normal and Toxemic Pregnancy. N. S. Assali and H. Prystowsky.—p. 1354.
Id.: II. Observations on Nature of Blood Pressure Fall with High Selective Spinal Anesthesia in Pregnant Women. N. S. Assali and H. Prystowsky.—p. 1367.
Cytological Studies in Association with Local Injections of Streptokinase-Streptodornase into Patients. A. J. Johnson.—p. 1376.
Observations on Autonomic Participation in Pulmonary Arteriolar Resistance in Man. N. O. Fowler, R. N. Westcott, V. D. Hauenstein and others.—p. 1387.
Potentiation of Pressor Effects of Nor-Epinephrine and Epinephrine in Man by Desoxycorticosterone Acetate. W. Raab, R. J. Humphreys and E. Lepeschkin.—p. 1397.
*Comparative Effects of Small Intravenous Doses of Epinephrine upon Arterial Pressure and Pulse Rate in Normotensive Subjects and in Hypertensive Patients Before and After Thoracolumbar Sympathectomy. W. E. Judson, J. W. Culbertson, C. M. Tinsley and others.—p. 1405.
Comparative Effects of Small Intraveous Doses of L-Nor-Epinephrine upon Arterial Pressure and Pulse Rate in Normotensive Subjects and in Hypertensive Patients Before and After Thoracolumbar Sympathectomy. W. E. Judson, F. H. Epstein and R. W. Wilkins.—p. 1414.

Cholesterol in Blood Serum in Relation to Age.—Keys and his associates determined the total serum cholesterol concentration in 1,492 men from 17 to 78 years of age and in 564 women from 17 to 30 years of age. These persons were judged to be physically normal on the basis of thorough examinations. Both Schoenheimer-Sperry (digitonin) and Bloor extract-Liebermann-Burchard methods were used, with close agreement between the results. Over the age of 30 the cholesterol values for men and women were not significantly different as to averages, individual variability and age trend. Over this age there was an average increase, per year of age, amounting to 2.2 mg. of total cholesterol per 100 cc. of serum. The cholesterol data for limited age ranges were shown to conform to normal (Gaussian) frequency distribution. For the age range 17 to 78 years in men there was a pronounced curvilinear relation between age and serum cholesterol concentration, with a maximum in the sixth decade. At all ages above 35 years, 1 per cent of such "normal" men exceed 300 mg.; between the ages of 45 and 60, 5 per cent exceed 300 mg. Over the age of 70 years, 1 per cent will exceed 320 mg. Analysis of published data demonstrated substantial agreement with the age relation found here in spite of previous conclusions to the contrary in the literature.

Effects of Epinephrine on Arterial Pressure.—According to Judson and his co-workers, increasing evidence has accumulated to cast doubt on the theory that epinephrine plays a part in the etiology of essential hypertension. Investigators have observed, however, that sympathetic denervation increases the sensitivity of the smooth muscles to epinephrine. The authors observed a large number of hypertensive patients before and after thoracolumbar sympathectomy and recorded the complex hemodynamic responses following small intravenous doses of epinephrine. They were able to verify the suggestion made by Pickering that in man there is a three-phase response to small intravenous doses of epinephrine hydrochloride. The response consists of a hypertensive phase, occurring usually 15 to 25 seconds after injection, a transient hypotensive phase, usually manifested at 25 to 35 seconds and a more sustained hypertensive phase, observed after 55 to 70 seconds. There are no qualitative differences in the blood pressure reactions to epinephrine in normotensive as compared with hypertensive patients before or soon after thoracolumbar sympathectomy. Pulse rate responses to small intravenous doses of epinephrine in normotensive patients differ slightly from those in preoperative hypertensive patients in that the pulse rates of the normotensive subjects are usually slower in the first and third phases. After thoracolumbar sympathectomy the pulse rate responses of hypertensive patients in the first and third phases resemble those of normotensive subjects. No evidence has been found to indicate that hypertensive patients are more sensitive than normotensive subjects to the pressure effects of single intravenous doses of epinephrine hydrochloride or that such patients become more sensitive after thoracolumbar sympathectomy.

Journal of Infectious Diseases, Chicago

87:99-200 (Sept.-Oct.) 1950. **Partial Index**

Relation Between Toxin Production and Protein Synthesis by Corynebacterium Diphtheriae. A. C. Brandwijk, A. Tasman and J. D. Van Ramshorst.—p. 99.
Studies on Experimental Epidemiology of Respiratory Infections. W. R. Leif and A. P. Krueger.—p. 103.
In Vitro Studies of Bacterial Resistance to Chloramphenicol (Chloromycetin) G. L. Coffey, J. L. Schwab and J. Ehrlich.—p. 142.
Production of Steam Volatile Acids by Bacteria-Free Ascaris Lumbricoides. W. Epps, M. Weiner and E. Bueding.—p. 149.
Isolation of Virus of Poliomyelitis From Stools, Oropharynx and Nose of Contacts. F. M. Schabel Jr., A. E. Casey, W. I. Fishbein and H. T. Smith.—p. 152.
Effect of X-Irradiation on Experimental Enteric Cholera in Guinea Pig. W. Burrows, N. G. Deupree and D. E. Moore.—p. 158.
Effect of X-Irradiation on Fecal and Urinary Antibody Response. W. Burrows, N. G. Deupree and D. E. Moore.—p. 169.
Unusual Types of Enteric Bacteria. P. R. Edwards and M. G. West. —p. 184.
Comparative Susceptibility of Anopheles Albimanus and Anopheles Quadrimaculatus to a South Carolina Strain of Plasmodium Falciparum. D. E. Eyles and M. D. Young.—p. 189.
Studies in Bacillary Dysentery. L. M. González, G. Arbona and J. Fernós.—p. 194.

Journal of Nervous and Mental Disease, New York

112:281-374 (Oct.) 1950

Neurology of Bing. R. Wartenberg.—p. 281.
*Preliminary Report of 62 Prefrontal Lobotomies on Psychotic Male Veterans at Veterans Hospital, Northport, Long Island, New York. L. Drubin.—p. 301.
Family Role in Diagnosis and Treatment of Offenders. D. Abrahamsen and R. Palm.—p. 311.
Psychopathological Aspects of Deafness. A. Zeckel.—p. 322.

Prefrontal Lobotomy on Veterans.—Drubin says that 16 of the 67 patients who were subjected to prefrontal lobotomy at the Veterans Hospital in Northport, N. Y., were operated on by the burr hole lobotomy technic, developed by Freeman and Watts. Of the 16 patients undergoing this type of operation, four died as a result of the surgical procedure. The open prefrontal lobotomy technic described by Scarff and Kalinowsky was then adopted, and in 51 consecutive cases there were no operative deaths. None of the patients operated on can be considered as cured or in complete remission, and none of the patients are worse. Twenty-three of the patients are greatly improved; 18 are moderately improved; 17 are only slightly improved. Four patients have shown no significant improvement. Loss of agitated, self-destructive and disturbed behavior in chronic psychotic patients is the outstanding accomplishment of lobotomy in a substantial percentage of the cases. Catatonics and hebephrenics showed greater improvement than patients with other types of schizophrenia. Of 12 of the patients who had convulsions following lobotomy, six had had no previous shock therapy. Average time between operation and onset of convulsions was six and one-half months. Patients under 40 years of age showed a slight tendency to better response after lobotomy

than older patients. The electroencephalogram was not found to be a valuable guide in indicating which patients would develop postoperative convulsions.

Journal of Nutrition, Philadelphia

42:157-318 (Oct.) 1950

Effect of Protein Deficiency and Other Dietary Factors on X Zone of Mouse Adrenal. E. Howard and R. S. Benua.—p. 157.
Fecal Excretion of Lipids by Rats as Influenced by Diet. J. A. Schulz and B. H. Thomas.—p. 175.
Peptide Wastage Consequent to Infusion of Two Protein Hydrolysates. H. N. Christensen.—p. 189.
Pantothenic Acid Studies: X. Influence of Pantothenic Acid Conjugate (PAC) Upon Growth and Citrate Formation in Rats. T. E. King, F. M. Strong and V. H. Cheldelin.—p. 195.
Nutritive Valute of Canned Foods: XLII. Study of Protein Value of Young and Mature Peas (Pisum Sativum). R. G. Chitre, J. N. Williams Jr. and C. A. Elvehjem.—p. 207.
Protective Action of Vitamin B_{12} Against Toxicity of DL-Thyroxine. B. Sure and L. Easterling.—p. 221.
Nutritional Value of Plant Materials: III. Acute Uremia of Newborn Rats from Mothers Fed Plant Rations. H. O. Halvorson and M. O. Schultze.—p. 227.
Studies on Comparative Nutritive Value of Fats: XIII. Growth and Reproduction over 25 Generations on Sherman Diet B Where Butterfat Was Replaced by Margine Fat, Including Study of Calcium Metabolism. H. J. Deuel Jr., S. M. Greenberg, E. E. Savage and L. A. Bavetta.—p. 239.
Nutrition of Mouse: VIII. Studies on Pantothenic Acid, Biotin, Inositol and *P*-Aminobenzoic Acid. P. F. Fenton, G. R. Cowgill, M. A. Stone and D. H. Justice.—p. 257.
Comparative Effects of B Vitamins and Liver on Dinitrophenol Toxicity in the Rat. B. H. Ershoff.—p. 271.
Protective Effect of High Fat Diets on Immature Rats Fed Thyroid. S. M. Greenberg and H. J. Deuel Jr.—p. 279.
Perspiration as Factor Influencing Requirement for Calcium and Iron. F. A. Johnston, T. J. McMillan and E. R. Evans.—p. 285.
Utilization of Dehydroascorbic Acid by Human Subjects. E. N. Todhunter, T. McMillan and D. A. Ehmke.—p. 297.
Vitamin E Requirement of Guinea Pigs. F. A. Farmer, B. C. Mutch, J. M. Bell and others.—p. 309.

Journal of Pediatrics, St. Louis

37:435-684 (Oct.) 1950. **Partial Index**

Electroencephalography in Cerebral Palsy. R. B. Aird and P. Cohen.—p. 448.
Effect of Transfusions and Antibiotics upon Duration of Life in Children with Lymphogenous Leucemia. H. R. Bierman, P. Cohen, J. M. McClelland and M. B. Shimkin.—p. 455.
Signs and Symptoms of Supratentorial Brain Tumors in Childhood. E. Boldrey, H. C. Naffziger and L. H. Arnstein.—p. 463.
*Pathologic Lesions in Cystic Fibrosis of Pancreas. W. L. Bostick and J. F. Rinehart.—p. 469.
Infections of Central Nervous System: Approach to Diagnosis. H. Brainerd.—p. 478.
Abnormalities in Secretion of Adrenal Cortex During Early Life. W. C. Deamer and H. K. Silver.—p. 490.
Congenital Hypertrophic Pyloric Stenosis. O. F. Grimes, H. G. Bell and M. B. Olney.—p. 522.
Oculoglandular Conjunctivitis Due to Leptothrix. M. Henry.—p. 535.
Role of Laboratory in Antibiotic Therapy. E. Jawetz and M. S. Marshall.—p. 545.
Studies on Etiology of Exanthema Subitum (Roseola Infantum). C. H. Kempe, E. B. Shaw, J. R. Jackson and H. K. Silver.—p. 561.
Hemolytic Disease of Newborn Infant (Erythroblastosis Fetalis). Study of Pathologic Lesions of 20 Cases. S. Lindsay.—p. 582.
*Study of Occurrence of Normal Rh-Negative Infants Born to Sensitized Rh-Negative Women. S. P. Lucia and M. L. Hunt.—p. 599.
Significance of Nutrition as Ecologic Factor in Prevention of Disease. S. P. Lucia and N. Simmonds.—p. 604.
Status Marmoratus: Form of Cerebral Palsy Following Either Birth Injury or Inflammation of Central Nervous System. N. Malamud.—p. 610.
Reservoirs of Infection. K. F. Meyer.—p. 626.
Coarctation of Aorta in Children. Observations in 14 Cases. M. B. Olney and H. B. Stephens.—p. 639.
Infectious Mononucleosis of Central Nervous System with Bilateral Papilledema. J. J. Piel, H. E. Thelander and E. B. Shaw.—p. 661.
Voluntary Imitative Convulsive Attacks Observed in Convulsive Clinic. G. H. Schade.—p. 666.

Cystic Fibrosis of Pancreas.—Bostick and co-workers review the literature and report autopsy observations of 20 cases of fibrocystic disease of the pancreas. The ages ranged from 20 days to 12 years. Varying degrees of cystic Brunner's glands were found in all cases in which the duodenum was sectioned. Pulmonary lesions were consistent and typical. The striking lesion was near and in the bronchus, which was extensively inflamed, often dilated and had a partially ulcerated wall. The pancreatic lesions were most characteristic. No definite relation between pulmonary and pancreatic lesions was established in this study. There was no apparent correlation between the microscopic appearance of the pancreas and the severity of the celiac syndrome. This emphasizes the fact that the celiac syndrome may be produced by any combination of the following factors: abnormal or faulty bile function, pancreatic anomalies, abnormal succus entericus, faulty intestinal absorption and rapid passage of contents through the intestine.

Rh-Negative Infants and Sensitized Rh-Negative Mothers.—Lucia and Hunt studied 30 cases of normal Rh-negative infants born to sensitized Rh-negative mothers. They divided the cases into two categories: group 1, consisting of 17 cases in which Rh antibodies were present in the maternal serum on all examinations and group 2, consisting of 13 cases in which Rh antibodies were present on some occasions and absent on others. The tests for Rh sensitization showed appreciable amounts of Rh antibodies to be consistently present in the serums of 17 Rh-negative women who subsequently bore Rh-negative infants. In seven cases, the antepartum antibody titer increased in intensity, and in 10 cases the antibody titer remained constant. All women in whom the antibody titers were consistently present (group 1) showed evidence of a high degree of Rh immunization in terms of the amount and type of antibody present and in some cases by having previously borne an erythroblastotic infant. The authors conclude that the only basis for the prediction of the birth of an Rh-negative infant to a sensitized Rh-negative woman is, first, the determination of the Hr status of the husband, and, second, the trend of the maternal antepartum Rh antibody titer. If the husband is heterozygous (Rhrh) and the titer remains constant, the baby will probably be Rh negative. However, some highly immunized Rh-negative women may actually show a rising Rh antibody titer and still bear an Rh-negative infant.

Journal of Thoracic Surgery, St. Louis

20:505-670 (Oct.) 1950

Studies with Arteriovenous Fistulas: I. Response of Normally Innervated and Denervated Heart to Occlusion of Fistula. H. B. Schumacker Jr., L. W. Freeman and L. R. Radigan.—p. 505.
Experiences with Experimental Surgical Relief of Aortic Stenosis: Preliminary Report. C. P. Bailey, R. P. Glover, T. J. E. O'Neill and H. P. Redondo Ramirez.—p. 516.
Experimental Creation and Closure of Auricular Septal Defects. H. Swan, G. Maresh, M. E. Johnson and G. Warner.—p. 542.
Physiologic Evaluation of Vagus Section for Bronchial Asthma. K. P. Klassen, D. R. Morton and G. M. Curtis.—p. 552.
Therapeutic Status of Pulmonary Autonomic Nerve Surgery. O. A. Abbott, W. A. Hopkins and P. H. Guilfoil.—p. 571.
*Surgical Treatment of Intractable Asthma. B. Blades, E. J. Beattie Jr. and W. S. Elias.—p. 584.
Experimental Use of Homogenous Tracheal Transplants in Restoration of Continuity of Tracheobronchial Tree. T. L. Jackson, E. J. O'Brien, W. Tuttle and J. Meyer.—p. 598.
Resection of Trachea and Bronchi: Experimental Study. M. G. Carter and J. W. Strieder.—p. 613.
Further Experiences with Dermal Grafts for Healed Tuberculous Stenosis of Bronchi and Trachea. P. W. Gebauer.—p. 628.
Technique of Pulmonary Decortication and Pleurolysis. M. H. Williams.—p. 652.
Lobar Agenesis of Lung. D. R. Morton, K. P. Klassen and E. H. Baxter.—p. 665.

Surgical Treatment of Intractable Asthma.—Blades and his associates describe an operation designed to relieve severe asthmatic symptoms by interruption of the autonomic nerve supply to the bronchi. They made a left posterolateral incision over the fifth rib and after division of the overlying muscles resected a long segment of the rib. The pleura was incised and the left thoracic cavity opened. The vagus nerve was identified at the level of the pulmonary plexus, freed and retracted gently but not cut. The pulmonary plexus about the bronchus is destroyed. All branches of the vagus to the pulmonary hilum and lung are divided below the level of the recurrent laryngeal nerve, but the esophageal branches and the main trunk of the vagus are saved. The sheaths of the pulmonary artery and veins are removed as far as possible, and the pulmonary ligament is divided. The chest wall is reconstructed in layers, with an intercostal catheter placed in a separate stab wound and connected to a water-sealed bottle. The authors comment on the many variations in the pattern

of vagus nerve distribution. In the past 34 months the authors have operated on 38 patients with severe asthma, selected becaues they were completely incapacitated and all known conservative treatment had failed. Of the 38 patients, 14 are now free of asthma. Eight patients consider themselves improved. In eight cases the disease is unchanged, and in one instance the asthma appears to be worse. There was one postoperative death and six later deaths.

Journal of Urology, Baltimore

64:541-632 (Oct.) 1950

Experimental Urolithiasis: I. Development of Calculi upon Foreign Bodies Surgically Introduced into Bladder of Rats. C. W. Vermeulen, W. J. Grove, R. Goetz and others.—p. 541.
Id.: II. Influence of Urine Volume upon Calculi Experimentally Produced upon Foreign Bodies. W. J. Grove, C. W. Vermeulen, R. Goetz and H. D. Ragins.—p. 549.
Radiographic Diagnosis of Perinephric Abscess. R. E. Parks.—p. 555.
Endometriosis of Kidney. L. A. Maslow and A. Learner.—p. 564.
Ureteral Implantation: II. Clinical Results from Method of Open Submucosal Anastomosis. F. Hinman Jr.—p. 567.
Instrumental Removal of Wax Foreign Bodies from Bladder. J. J. Joelson.—p. 572.
Correction of Stress Incontinence in Female. G. Schinagel.—p. 573.
Nervous System Lesions Which Affect the Bladder. C. Ferguson. —p. 578.
Sterilization of Neurogenic Bladder by Mandelamine (Methenamine Mandelate): Studies in Bladder Function, No. XIII. I. Simons. —p. 586.
Experimental Production of Epididymitis with Sterile Urine; Clinical Implications. R. S. Graves and W. J. Engel.—p. 601.
Male Sterility Due to Centriolar-Mitochondrial Disease of Spermatozoa. W. W. Williams.—p. 614.
Indications for Aureomycin and Chloromycetin in Urinary Infections. R. D. Herrold and A. V. Boand.—p. 618.
New Cysto-Urography and Transurethral Operating Table: Hydraulic Operation Providing Prompt Wide Range Position Change. F. E. B. Foley.—p. 622.

Mental Hygiene, Albany, N. Y.

34:529-712 (Oct.) 1950. **Partial Index**

Dynamic Consideration in Community Functions. G. S. Stevenson. —p. 531.
Future Psychiatric Program of the Veterans Administration. H. C. Modlin.—p. 547.
Present Status of Research in Dementia Praecox. W. Malamud.—p. 554.
What Do We Know About Dementia Praecox? N. D. C. Lewis.—p. 569.
Psychiatric Factors in Rehabilitation of the Aging. H. E. Clow.—p. 592.
Clinical Problems Common Among College Students. G. M. Lott. —p. 641.

Nebraska State Medical Journal, Lincoln

35:305-336 (Oct.) 1950

Golden Age of Medicine. E. V. Allen.—p. 307.
Should We Prolong Suffering? E. Davis.—p. 310.
Pain in Neck and Shoulder. H. N. Neu.—p. 312.
Infection and Gangrene in Diabetic Extremity: Critical Review of Surgical Management Over 17 Year Period. C. W. McLaughlin Jr. and J. G. Wiedman.—p. 316.

New England Journal of Medicine, Boston

243:583-630 (Oct. 19) 1950

*Maternal Pulmonary Embolism by Amniotic Fluid: Report of Three Cases and Discussion of Literature. G. K. Mallory, N. Blackburn, H. J. Sparling and D. A. Nickerson.—p. 583.
Pathogenesis of Amniotic-Fluid Embolism: I. Possible Placental Factors —Aberrant Squamous Cells in Placentas. O. C. Leary Jr. and A. T. Hertig.—p. 588.
*Id.: II. Uterine Factors. B. H. Landing.—p. 590.
Id.: III. Coagulant Activity of Amniotic Fluid. A. E. Weiner and D. E. Reid.—p. 597.
Portal Hypertension. C. S. Welch.—p. 598.

Amniotic-Fluid Embolism.—Mallory and co-workers report three cases of maternal pulmonary embolism from amniotic fluid, with a summary of the 17 previously reported cases. This syndrome is a little recognized complication of labor and the early puerperium. The patients in this study, as in other reported cases, were multiparas of the older age group. The characteristic course was initiated by violent uterine contractions after which the patient became dyspneic and cyanotic, went into shock and usually died in less than an hour. Although a clinical diagnosis has rarely been made, such a diagnosis should be possible by those familiar with the syndrome. The diagnosis was made pathologically by the finding of formed elements of amniotic fluid in the pulmonary arterioles and alveolar capillaries. From the prophylactic standpoint induction of violent labor by posterior pituitary extract (pituitrin®) is not logical, and it should be prevented in older multiparas, particularly those who have had a premature rupture of the membranes. Contrary to the opinion of previous writers, it is believed that pulmonary embolism from amniotic fluid is a rare cause of maternal death.

Uterine Factors in Amniotic-Fluid Embolism.—Landing reports on the results of analysis of uteri and lungs obtained postpartum from 87 patients who had hysterectomies or died after postpartum hemorrhage, cesarean section or ruptured uterus, and from 29 control patients who died in the first postpartum week. Amniotic fluid appears to enter the maternal circulation only by way of uterine or placental vessels opened abnormally, as in placenta accreta, cesarean section, rupture of the uterus, partial retention of the placenta and posibly, also, premature marginal separation of the placenta. The rarity of clinical amniotic-fluid embolism indicates that enough fluid for production of an embolic syndrome rarely enters the maternal circulation. Most patients in whom this syndrome was demonstrated had an unusual degree of hemorrhage, either antepartum, intrapartum or postpartum. It seems possible that smaller amounts of amniotic fluid in the maternal circulation, or perhaps a lower rate of entrance, may lead to a hemorrhagic tendency. The syndrome of acute embolism can be produced only when there is a massive entrance of amniotic fluid into the maternal circulation. Lesser degrees or slower rates of entrance give rise to local thrombosis followed by a syndrome of generalized hemorrhagic tendency.

243:631-660 (Oct. 26) 1950

Results of Boston Chest X-Ray Survey. J. H. Cauley.—p. 631.
*Obliteration of Pain at Site of Reference by Intradermal Infiltration Anesthesia in First-Stage Labor. A. A. Abrams.—p. 636.
Ferrous Sulfate Toxicity. Report of Fatal Case. R. P. Smith, C. W. Jones and W. E. Cochran.—p. 641.
Anti-Pitressin Factor in Treatment of Dysmenorrhea. W. Bickers. —p. 645.
Medical Progress: Diabetic Coma. A. M. Butler.—p. 648.

Intradermal Infiltration Anesthesia.—Abrams presents a study on the use of intradermal anesthesia in the alleviation of pain referred to the abdomen and back in first-stage labor. Most patients were treated with 1.5 per cent solution of piperocaine hydrochloride (metycaine®), to which a 1:200,000 dilution of epinephrine was added. In most multiparas and in a good many primiparas, a single injection sufficed during the first stage of labor. Approximately 30 cc. of the solution was used for lower abdominal infiltration and up to 30 cc. for infiltration over the upper sacrum and sacroiliac joints. The anesthetic was immediately effective and did not cause any alteration of the uterine tone or the frequency, intensity or duration of uterine contractions. The author states that intradermal anesthesia is useful in first stage labor because pain during the greater part of labor is abolished without the depressing effects of sedation. Also, this type of anesthesia does not produce any local or systemic complications and requires no special knowledge or special aftercare.

Oklahoma State Medical Assn. Jour., Oklahoma City

43:441-472 (Oct.) 1950

Clinical Features of Pelvic Endometriosis. C. H. Tyrone.—p. 444.
Geriatric Gynecology. B. C. Chatham.—p. 448.
Use of Glutamic Acid Hydrochloride for Nausea and Vomiting of Pregnancy. H. S. Orr.—p. 451.
Recent Trends in Biliary Tract Surgery. V. A. Bradford.—p. 454.

43:473-514 (Nov.) 1950

Treatment of Certain Common Skin Diseases. R. R. Kierland.—p. 476.
The Acute Abdomen—Outside Looking in. E. D. Greenberger.—p. 482.
Newer Methods of Cholecystography. P. E. Russo and C. J. Cavanaugh. —p. 485.
What the Family Medical Adviser Should Know About Fenestration Surgery. J. S. Knight.—p. 489.
Personal Experiences with ACTH and Cortisone Therapy. T. O. Coston. —p. 492.

Pennsylvania Medical Journal, Harrisburg

53:1057-1136 (Oct.) 1950

Hemochromatosis: Review of Literature. J. C. Doane, C. H. Kravitz and G. Rosenstein.—p. 1081.
Congenital Anomalies of Urinary Tract in Infants and Children. S. H. Johnson III.—p. 1085.
Modern Treatment of Actinomycosis. W. S. Nettrour.—p. 1089.
Thrombophlebitic Edema of Legs and Its Control by Flexible Laced Stocking. L. Kaplan.—p. 1092.

Physiological Reviews, Baltimore

30:431-568 (Oct.) 1950

Action of Ultraviolet Radiation on Protoplasm. A. C. Giese.—p. 431.
Caudal and Cephalic Influences of Brain Stem Reticular Formation. H. W. Magoun.—p. 459.
Multiple Embolism of Lung and Rapid Shallow Breathing. D. Whitteridge.—p. 475.
Alternative Metabolic Pathways. V. R. Potter and C. Heidelberger. —p. 487.
*Nutrition and Goiter. M. A. Greer.—p. 513.
Significance of Glutamic Acid for Metabolism of Nervous Tissue. H. Weil-Malherbe.—p. 549.

Nutrition and Goiter.—Greer comments on early studies on nutrition and goiter and is concerned chiefly with the numerous investigations of "cabbage goiter" or the goitrogenic effect of various members of the Brassica (mustard or cabbage) family of vegetables. Although isolated instances have been reported of persons with a craving for cabbage developing goiter, in the majority of patients, simple goiter cannot be correlated with a dietary peculiarity. World War II provided opportunities for observation of the influence of diet. In the Low Countries, for a time the diet consisted mainly of cabbage, turnips or related foods. This diet was accompanied by an increased incidence of simple goiter. In Belgium simple goiter increased, whereas thyrotoxicosis decreased during 1941-1944 as compared to 1936-1939. This was believed due to the high consumption of kohlrabi, cabbage and similar vegetables. The monks in a monastery in Belgium, who had to subsist on a diet of rutabagas and tulip bulbs during the war, developed goiters. In contrast, there was a striking increase in the incidence of thyrotoxicosis in Denmark and Norway during the war. In Denmark, the nutritional status remained satisfactory throughout the period of hostilities and the incidence of hyperthyroidism remained at a high level. In Norway, however, although there was a pronounced rise in the incidence of the disease in 1941, the prewar level had been approached by the following year. The clinical significance of cabbage goiter has been contested by some investigators. Wegelin stated that the people of southern and western Switzerland ate more cabbage than those in other parts of the country where goiter was much commoner. Sul, however, found that the goitrous population of Carpathian Ruthenia consumed large quantities of cabbage. Although it is unlikely that goiter will result if these goitrogenic foods are eaten in normal quantity, it is possible that when the dietary intake is limited almost entirely to these vegetables the amount of antithyroid material ingested may be sufficient to inhibit thyroxin synthesis and thereby cause thyroid enlargement. Greer says that studies by himself and his collaborators indicate that cooking of the vegetables will probably prevent goitrogenesis. It is possible that other naturally occurring goitrogens may in the future be isolated from other foods and that these may not require enzymatic liberation for their antithyroid activity. The problem of simple goiter is far from solved.

Public Health Reports, Washington, D. C.

65:1351-1382 (Oct. 20) 1950

Arthritis as Public Health Problem. L. A. Scheele.—p. 1351.
Multiple Screening and Specialized Programs. J. W. Mountin.—p. 1359.
National Conference on Aging. C. Tibbitts.—p. 1369.

65:1383-1418 (Oct. 27) 1950

Rural Health Cooperatives. H. L. Johnston.—p. 1383.
Cancer Program in Medical Schools. Review. R. F. Kaiser.—p. 1397.
Studies on Mass Control of Dental Caries Through Fluoridation of Public Water Supply. H. T. Dean, F. A. Arnold, Jr., P. Jay and J. W. Knutson.—p. 1403.

Review of Gastroenterology, New York

17:853-980 (Oct.) 1950

Significance of Gastrointestinal Tract in Emotional Maturation. H. M. Fox.—p. 865.
Destructive Forms of Hepatitis. B. O. C. Pribram and R. Upham. —p. 880.
Gastric Analysis—Practical or Useless? R. Ricketts.—p. 893.
Gastric Ulcer Problem. S. M. Gilbert.—p. 916.
Double Gallbladder. F. Cunha and B. M. Day.—p. 928.
"Angina Dyspeptica" Sine Abdominalis and "Obstipatio Senilis." S. Dahl. —p. 931.
Masquerading Esophageal Lesions: Clinical Phenomena of Transferred Abnormal Effects Possibly Due to Vagovagal Reflexes. D. E. Harken, R. E. Farrand and L. R. Norman.—p. 935.
Postoperative Prevention of Anal Stenosis. I. G. Larkey.—p. 948.
Corticodiencephalic Gastrointestinal Syndromes in Epileptics (Part X). T. S. P. Fitch, A. W. Pigott and S. M. Weingrow.—p. 950.

Rocky Mountain Medical Journal, Denver

47:745-786 (Oct.) 1950

Foot Problems in Young Children. E. L. Compere.—p. 747.
Presidential Address. E. A. Hinds.—p. 752.
President's Address. De W. Dominick.—p. 758.
Ambulatory Treatment of Syphilis: Case Holding Experiences in Outpatient Management of Ambulatory Patients Treated with Penicillin. R. M. Sorenson and R. D. Shannon.—p. 760.
Newer Concepts of Recognition and Prevention of Congenital Dislocation of Hip. R. S. Clegg.—p. 765.

West Virginia Medical Journal, Charleston

46:293-316 (Oct.) 1950

Medical Freedom and How to Keep It. L. Baxter.—p. 293.
Broadening Front Against State Socialism. C. Whitaker.—p. 296.
Retrobulbar Injection of Alcohol. C. M. Polan.—p. 299.
A Step Toward Dictatorship. A. B. Bowyer.—p. 301.
*Psychiatric Aspects of Epilepsy. J. B. Funkhouser.—p. 304.

46:317-336 (Nov.) 1950

Report of Rural Health Survey in Roane County. G. Humphreys. —p. 317.
Rural Medical Facilities. G. F. Bond.—p. 321.
Problems of Rural Medical Care. H. B. Mulholland.—p. 326.
Rural Health Centers. N. H. Dyer.—p. 328.

Psychiatric Aspects of Epilepsy.—According to Funkhouser, the electroencephalograph has demonstrated that the traditional separation of epilepsy into the grand mal and petit mal types must be abandoned. Epilepsy can be divided into three groups. There are the convulsive disorders, which include classic grand mal and occur at any age. This type is manifested in the brain waves by sharp, sudden deflections called spikes, usually is benefited by diphenylhydantoin (dilantin®) sodium or phenobarbital sodium and may be aggravated by trimethadione (tridione®). Second, there is petit mal, which occurs principally in children. It is manifested by alternating spikes and slow waves in the brain wave tracing, usually is benefited by trimethadione and may be aggravated by diphenylhydantoin. A third type of epilepsy occurs principally in young adults. It is manifested by focal electroencephalographic abnormality or spikes in one or both temporal lobes and is seldom benefited by medication, although it is frequently aggravated by phenobarbital. This third or psychomotor type of epilepsy probably includes the concepts of "epileptic psychosis," "epileptic fugue," "epileptic furor," "postepileptic confusional state" and "epileptic automatism." Perhaps it also includes many cases of hysteria, temper tantrums, somnambulism or unclassified psychosis. The author doubts that there is any valid correlation between abnormal brain waves and psychopathic behavior, criminality, hysteria and other miscellaneous neuropsychiatric conditions. Certain psychopaths and hysterics and many miscellaneous personality deviations that are not now classified as epilepsy do manifest abnormal brain waves that are similar and, in some cases, indistinguishable from the brain waves of epileptics. The author feels that if some psychopaths and some persons with behavior problems can be shown to have epileptic equivalents, there may be more hope for epiletics than exists otherwise. An operation on the anterior temporal lobe in selected cases of psychomotor epilepsy has produced at least a temporary remission of symptoms. This, with the new drugs now used in the treatment of epilepsy, suggests that the general outlook for epileptics is improving.

FOREIGN

British Journal of Surgery, London

38:1-128 (July) 1950

*Smooth-Muscle Tumors of Gastro-Intestinal Tract. R. H. Cowdell. —p. 3.
Successful Resection of Large Cavernous Lymphangiomatoid Lesion of Liver of Child Aged 19 Months. W. St. C. Symmers and J. N. Ward-McQuaid.—p. 12.
Volvulus of Stomach. J. Y. W. Russell.—p. 17.
Observations on Bile-Acid Enteroliths with Account of Recent Case. G. Armitage, F. S. Fowweather and A. S. Johnstone.—p. 21.
Sarcoma Botryoides of Genital Tract in Female Children. R. Shackman. —p. 26.
Value of Fibrinogen-B Test in Intravascular Thrombosis in Surgical Subjects. E. R. Trethewie, R. D. Carman and A. J. Day.—p. 30.
Renal Hydatid Disease. V. S. Howarth.—p. 38.
Aortic Embolectomy. M. R. Ewing.—p. 44.
Appendicitis—Report on Its Social Pathology and Recent Surgical Experience. G. E. Moloney, W. T. Russell and D. C. Wilson.—p. 52.
Diverticula of Appendix and Certain Factors in Their Development. R. R. Wilson.—p. 65.
Changes in Carcinoma of Breast Following Irradiation. G. Lumb. —p. 82.
Carcinoma of Cheek in Child Aged Eight Years. E. N. Callum.—p. 94.
Collateral Circulation to Lungs. F. B. Cockett and C. C. N. Vass. —p. 97.
Chewing-Gum Vesical Calculus in the Male. T. Moore.—p. 103.
Morphology of Branchial Glomera and Their Tumours, with Report of Case of Aortico-Pulmonary Glomus Tumour. R. S. Monro.—p. 105.

Smooth Muscle Tumors of Gastrointestinal Tract.—Cowdell believes that the diagnosis of smooth muscle tumor of the gastrointestinal tract is rarely considered. If this were considered and if confusion with carcinoma were reduced, operative cure might be possible in some cases now regarded as hopeless, and less radical measures might suffice in some of the more localized tumors. He reports 10 cases, of which nine were tumors of the stomach and one of the jejunum, with the addition of a hamartoma of the duodenum, which contained a large proportion of smooth muscle tissue. Of the total, six were treated by operative removal, and, although in several instances the postoperative period is still short, the outcome in each has so far been very satisfactory. One patient, examined by laparotomy during life, was thought to have an inoperable sarcoma, and death followed within five months. The correct diagnosis in two cases was discovered first at postmortem examination. Two small tumors were incidentally observed at autopsy and were not likely to have been responsible for symptoms during life. Such small leiomyomas are not uncommon, and, as many of them are only a few millimeters in diameter, they are probably frequently missed during routine postmortem examination. The nine leiomyomas and leiomyosarcomas of the stomach here reported represent 2.4 per cent of the gastric neoplasms seen at the Radcliffe Infirmary during the period 1938 to 1949. This proportion, while fairly small, cannot be considered negligible. The author stresses the relatively good prognosis of these smooth muscle tumors when compared with that of carcinoma.

British Medical Journal, London

2:961-1014 (Oct. 28) 1950

"Verities Yet in Their Chaos." C. McNeil.—p. 961.
*Anticoagulants in Treatment of Coronary Thrombosis. J. A. Tulloch and A. R. Gilchrist.—p. 965.
Capillary Resistance and Adrenocortical Activity. H. N. Robson and J. J. R. Duthie.—p. 971.
Three Cases of Severe Burn Treated with Cortisone. P. O. Crassweller, A. W. Farmer, W. R. Franks and A. D. McLachlin.—p. 977.
Unusual Complication of Myanesin Therapy in Treatment of Tetanus. M. L. Newhouse, J. D. Rochford and G. R. Royston.—p. 981.
Case of Tetanus Treated with Decamethonium Iodide. R. M. S. Keir. —p. 984.
Prolonged Intercostal Paralysis Due to Relaxant. H. B. Fairley.—p. 986.

Anticoagulants in Coronary Thrombosis.—Tulloch and Gilchrist review 154 cases of myocardial infarction treated during the past three years. Eighty-four were treated by conventional measures alone and constitute the control group; 70 received anticoagulant therapy during the first three weeks after admission, in addition to the standard forms of treatment. All cases were unselected, their inclusion in one or other series being determined by the day of their admission to the hospital. Observations on these patients convinced the authors that anticoagulant therapy, suitably controlled by specialized technics, reduces by one half the mortality rate during the first six weeks after myocardial infarction. It appears more beneficial to men than to women, particularly to men whose myocardial efficiency was only slightly impaired before the acute damage was sustained. Thromboembolic complications are reduced by half, and, when they do occur, fatalities are lessened. Anticoagulant therapy cannot succeed without strict attention to the established methods of treatment. It does not shorten the stay in bed. It should be considered for every case of myocardial infarction.

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Edinburgh Medical Journal

57:317-368 (Aug.) 1950

Physiological and Clinical Effects of Cortisone and Adrenocorticotrophic Hormone (ACTH). L. S. P. Davidson.—p. 317.
Clinical Trials of ACTH: Preliminary Report. J. J. R. Duthie.—p. 341.

Fortschr. Röntgenstrahlen & Röntgenpraxis, Stuttgart

73:525-648 (Oct.) 1950. **Partial Index**

Roentgenologic Aspects of Formation of Aneurysm in Myocardium. W. Hirsch.—p. 525.
Postoperative Shadows in Lung. V. Knoll.—p. 537.
*Involvement of Hilar Nodes in Secondary Syphilis. W. Hornberger. —p. 553.
*Palliative Effect of Roentgen Irradiation in Bronchial Carcinoma. O. Willbold.—p. 558.
Increased Incidence of Calcifications Around Bones and Joints in Paraplegics. H. Lüdeke.—p. 564.
Sturge-Weber's Disease. F. Sommer.—p. 581.
Shape of Stomach During Diaphragmatic Relaxation: Differential Diagnosis Between Diaphragmatic Relaxation and Hernia. A. Vogt. —p. 589.

Involvement of Hilar Nodes in Secondary Syphilis.—Hornberger reports a woman, aged 29, with secondary syphilis and enlarged hilar lymph nodes. The enlargement of the nodes was ascribed to tuberculosis, Boeck's sarcoid, Hodgkin's disease or other diseases of the lymphatic system rather than to syphilis, until it responded favorably to antisyphilitic treatment. The author stresses that in secondary syphilis roentgenologically visible enlargement of the hilar lymph nodes occurs only in the presence of a syphilitic tracheobronchitis or other unusual complication.

Roentgen Irradiation in Bronchial Carcinoma.—Willbold stresses the fact that roentgen irradiation is the only treatment of value in patients with inoperable bronchogenic carcinoma. Of 25 such patients who were referred for roentgen treatment, 18 could be given intensive irradiation. All showed some improvement, but this differed in degree and duration. In addition to roentgen therapy, sulfonamides and, sometimes, antibiotics were given to counteract the complicating bronchopneumonic and peribronchial inflammations. Evacuation of secretions was facilitated by postural drainage.

Medizinische Klinik, Munich

45:1297-1328 (Oct. 13) 1950. **Partial Index**

Returning Prisoners of War: Psychosomatic Aspects and Sympathetic Disturbances. W. P. Schmitz.—p. 1297.
Pulmonary Tuberculosis: Frequent Complication of Starvation Dystrophy. G. Mäkelt.—p. 1302.
Carbohydrate Metabolism and Water Exchange After Diseases Caused by Nutritional Deficiencies. H. Scheffler.—p. 1306.
Late Sequelae of Starvation Diets. H. Kalk.—p. 1310.
*Dwarf Tapeworm (Hymenolepis Nana) in Prisoners of War Returning from Russia. L. Wolff and W. Teusch.—p. 1313.

Dwarf Tapeworm in Prisoners of War Returning from Russia.—Wolff and Teusch found, in German prisoners of war returning from Russia, a high incidence of infestation with the dwarf tapeworm (Hymenolepis nana). Infestation with this worm is rare in Germany and in all of the more northerly countries in Europe, but is common in warmer countries, including the southern parts of Russia. A diet deficient in vitamins and fats, such as these war prisoners had subsisted on, favors infestation with this type of tapeworm. The author describes the

technic used for the detection of the ova in the feces and discusses the life cycle of H. nana, including the mechanism of human infestation. Mild and moderate degrees of infestation may cause almost no symptoms, but severe infestation is usually accompanied by fatigue, malaise, anemia, nausea, eructations and severe pains in the right side of the abdomen that may lead to a mistaken diagnosis of appendicitis. Disorders of the central nervous system are observed in some patients, but the authors believe that other factors are probably responsible for these symptoms as well as for the anemia. The anthelmintics, such as chenopodium extract, used to eradicate other tapeworms are effective in the treatment of infestation with H. nana.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

94:2721-2784 (Sept. 23) 1950. **Partial Index**

*Lead Poisoning. W. B. J. Gerrits and H. Heinemann.—p. 2722.
Duration of Intrapleural Pneumothorax Therapy. C. de Langen.—p. 2736.
Familial Occurrence of Polycystic Kidney and Spina Bifida. D. P. R. Keizer and H. A. Laan.—p. 2741.
Clinical, Parasitological and Serologic Observations in Course of Congenital Toxoplasmosis. J. D. Verlinde, O. Makstenieks, H. Beekman and A. C. Copper.—p. 2746.

Lead Poisoning.—Gerrits and Heinemann examined 60 printing shop employees who had recently been exposed to a powder with a high lead content used in the offset process. In the examination particular attention was paid to the lead color of skin and mucous membranes, the lead line, weakness of extensor muscles and blood pressure. The blood was examined for hemoglobin content, number of erythrocytes and leukocytes, basophilic stippling, polychromasia, anisocytosis, poikilocytosis and other changes. The urine was studied for porphyrin and lead content. The authors stress the need to differentiate between symptoms of increased lead absorption and those of lead intoxication. Of the 47 workers who were studied thoroughly, 44 showed signs of increased lead absorption, but only 21 had typical symptoms of lead poisoning.

Nordisk Medicin, Stockholm

44:1519-1552 (Sept. 22) 1950. **Partial Index**

*Treatment of Paralysis Agitans with Benadryl. T. Dalsgaard-Nielsen.—p. 1526.
Late Epididymitis. A. Lidström.—p. 1527.
Etiological Problems in Reiters' Disease. O. Lövgren and H. Karni.—p. 1528.

Paralysis Agitans and Diphenhydramine Hydrochloride.—According to Dalsgaard-Nielsen, the results of diphenhydramine hydrochloride (benadryl®) treatment were good in 15 cases of typical paralysis agitans (five advanced, six moderately advanced and four mild). The dosage was 50 mg. three times daily and in a few cases 50 mg. four times daily. The observation period was about six months, except for two cases observed only three months. Side effects (dizziness, general indisposition, weakness and confusion) occurred in only one instance. There was no demonstrable shifting of the leukocyte count beyond physiological limits. In over half the cases there was pronounced improvement in general condition, rigidity and bradykinesia; in most of the other cases, improvement was moderate or slight. The tremor was affected almost not at all by the treatment.

Oncologia, Basel

3:129-192 (No. 3) 1950

*Cure Rate of Sarcomas After Roentgen Treatment: Observations on 1,113 Cases of Sarcoma in Zürich from 1919 to 1949. A. Hoch.—p. 129.
*Combination of Pulmonary Carcinoma and Tuberculosis. E. Attinger.—p. 140.
Therapy and Prognosis of Primary and Secondary Osteogenic Sarcoma: Observations in Zürich Between 1919 and 1949. K. Hohl.—p. 163.

Cure Rate in Roentgen Treatment of Sarcoma.—Hoch reviews the results of roentgen therapy of 1,113 patients with sarcoma (including the leukemias and lymphogranulomas). Of these patients, 779 were given roentgen therapy alone, 328 received combined roentgen and surgical therapy and six received combined roentgen and radium therapy. At the end of five years, 161 (15 per cent) of the 1,113 patients were still alive. Of these, 95 had been treated with roentgen rays alone; the remainder had surgery in addition. The author feels that these results, many of them in patients who could no longer be operated on, should encourage the more frequent and painstaking use of roentgen therapy in cases of sarcoma.

Combination of Pulmonary Carcinoma and Tuberculosis.—Attinger reviews 758 cases of chronic pulmonary tuberculosis and 89 cases of pulmonary carcinoma, including 12 patients in whom the two diseases were present simultaneously. The ratio of men to women was as follows: for tuberculosis 3:2, pulmonary cancer 4.2:1 and pulmonary tuberculosis plus carcinoma 11:1. Pulmonary carcinoma, with or without tuberculosis, was most frequent during the seventh decade of life. In seven of the combined cases, the cancer developed secondary to the tuberculous lesion, three appeared in tuberculous cavities, three in the bronchus draining the lesion and one in tuberculous scar tissue. In two of these patients the carcinoma produced an exacerbation of the tuberculous process. Carcinoma of the draining bronchus is characterized by disappearance of bacilli from the sputum, atelectasis of the diseased lung and accelerated degeneration in the cut-off section of the lung. Histologically, these tumors generally are squamous cell carcinomas.

Policlinico (Pract. Sect.), Rome

57:1229-1238 (Sept. 25) 1950. **Partial Index**

*Finding of Autoantibodies with Coombs' Test in Acute Hemolytic Anemia Complicating Virus Pneumonia. F. Corelli and P. Ruggeri.—p. 1233.

Acute Hemolytic Anemia in Virus Pneumonia.—Acute hemolytic anemia complicating virus pneumonia is rare, almost always fatal and of unknown etiology. Corelli and Ruggeri believe that by means of the Coombs' test they have demonstrated autoantibodies to erythrocytes in the blood serum of a patient with this complication. In their opinion, such autoantibodies are responsible for the hemolysis occurring in this type of anemia. Positive results of Coombs' tests have also been reported in cases of acute hemolytic anemia complicating infectious mononucleosis and epidemic hepatitis.

Prensa Médica Argentina, Buenos Aires

37:2163-2214 (Sept. 15) 1950. **Partial Index**

*BCG Vaccination in Students of Buenos Aires University. R. F. Vaccarezza, B. Enquin and others.—p. 2163.

BCG Vaccine.—In the past 10 years, 2,200 tuberculin negative students have been vaccinated with BCG at the University of Buenos Aires. Vaccarezza and associates have obtained follow-up studies on 891 of these students and compared them with 7,664 unvaccinated students. The incidence of clinical tuberculosis has been 3.8 per 1,000 in the vaccinated group, 11.2 per 1,000 in the unvaccinated tuberculin-negative group and 4.0 per 1,000 in the unvaccinated tuberculin-positive group. The morbidity figures for the vaccinated and unvaccinated medical students were three times higher than those for the nonmedical students, but the same relative protection was afforded by the vaccine. The authors conclude that BCG vaccination should be obligatory for students of medicine.

Settimana Medica, Florence

38:265-282 (June 15) 1950. **Partial Index**

*Permeability of Capillaries in Acute Pulmonary Edema. L. D'Agostino and S. Semeraro.—p. 270.

Acute Pulmonary Edema.—D'Agostino and Semeraro state that acute pulmonary edema is due to increased permeability of the capillaries of the lungs because of an overproduction of histamine. The authors found in experiments on rabbits that intraperitoneal injection of a 25 per cent solution of vitamin P_2 (dihydroxycoumarin compound) containing 50 mg. of the vitamin for each kilogram of body weight prevented the occurrence of acute pulmonary edema. The authors point out the value of vitamin P_2 in prevention and therapy of subacute or acute pulmonary edema. Vitamin P_2 is well tolerated.

BOOK REVIEWS

The Prostate Gland. By Herbert R. Kenyon, M.D., Associate Clinical Professor, Department of Urology, New York University, Bellevue Medical Center, New York. Cloth. $2.95. Pp. 194, with 5 illustrations. Random House, 457 Madison Ave., New York 22, 1950.

The purpose of this book is to give authoritative information and guidance to the patient suffering from disease of the prostate gland. It is written as far as possible in simple, nontechnical language. The patient who suffers from prostatic disease will have little to ask his physician after he has read this volume. The book is well arranged and follows the usual set-up of textbooks on this subject. The chapter on anatomy and the anatomic diagrams are very informative. Functional disorders of the prostate gland are definitely increasing, and the author devotes a chapter to this topic. He calls attention to the results of improper sexual intercourse, such as withdrawal, coitus reservatus or excessive prolongation of the act. The physical effects of sexual maladjustments and psychic impotence, which are so common today, are well presented. The author emphasizes, and justly so, the need for consultation of a physician instead of questionable, nonmedical personnel.

A chapter is devoted to the results of urinary obstruction and its effects on the upper urinary tract. The subject of benign prostatic hypertrophy is well presented, and the various types of treatment are discussed, including suprapubic, perineal, transurethral and retropubic prostatectomy. The treatment of cancer of the prostate is presented in detail, with a discussion of the present status of the hormone treatment, castration and radical operation. The author is an able, practicing urologist and has written a good book for the laity. No physician need hesitate to recommend this book to his patients.

The Diagnosis and Treatment of Endocrine Disorders in Childhood and Adolescence. By Lawson Wilkins, M.D., Associate Professor of Pediatrics, The Johns Hopkins University, Baltimore, Maryland. Cloth. $13. Pp. 384, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

The author of this monograph has been occupied for the past 20 years in a study of endocrine disorders of childhood. The present volume is an outcome of this work and represents beyond question the most careful and scientifically accurate study that has been made in this field. Since abnormalities in growth and development are the outstanding manifestations of endocrine disorders of childhood, a consideration of these factors occupies rightfully a large part of the book. Diagnostic methods, including special tests and hormonal assays, are also described in detail, as are disorders of the thyroid, which constitute (next to diabetes mellitus, which is not considered) the commonest endocrine disorder of childhood. Dr. Wilkins has made important contributions and summarizes masterfully the knowledge in this field.

Other chapters are devoted to sexual precocity and infantilism, disorders of the adrenal, pituitary and parathyroid glands, abnormalities in carbohydrate metabolism and obesity. The author has thus covered the field completely and adequately, and the physician interested in childhood disorders from an endocrine standpoint can scarcely dispense with study of this well written and beautifully printed volume. By far the majority of children referred to the specialist in endocrinology are found to suffer from congenital anomalies with superficial manifestations of endocrinopathy. In any further edition of this volume, it is hoped, therefore, that Dr. Wilkins will expand the chapter devoted to this subject. The author is to be commended for this classic contribution to pediatrics and endocrinology and the publisher for his part in the manufacture of a beautifully made book.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Hay-Fever: A Key to the Allergic Disorders. By John Freeman, D.M. Cloth. 42s. Pp. 321, with 71 illustrations. William Heinemann, Ltd., 99 Great Russell St., London, W.C.1, 1950.

In 1908 Leonard Noon began investigating the causes and treatment of hay fever. Shortly thereafter, John Freeman, his lifelong friend, joined him in this adventure. In 1911 Noon and Freeman separately published their pioneering experiences with inoculation treatment of hay fever. In 1913 Noon died of tuberculosis and Freeman continued his work. This book is a culmination of the experiences of John Freeman with grass hay fever. He realizes that there are other forms of hay fever, particularly in other parts of the world, and that there are many other types of allergic manifestations, but he believes that setting down the facts relating to the English hay fever will give the "key to the allergic disorders." There is much substance in this volume, which abandons most of the conventional approach in books of this type. The manifestations of hay fever are described fully, and the classes of causes of allergy are considered. Three chapters are devoted to psychic and emotional factors. A chapter of 28 pages is assigned to the "bacterial factor," and many conditions, including eczema and dermographism, are blamed on bacteria.

This book contains a number of unique features that make it distinctly individualistic. Many pages are spent in a discussion of the propriety of single terms, such as "allergy," a term that the author believes is misused. Several new terms are adopted by him, such as "para-hay fever," "idiotoxic" and "Allergy I, II and III." Incidentally, such conditions as epilepsy, ichthyosis and dysidrosis are "idiotoxic" (allergic). Typical abandonment of orthodox procedure is depicted in such statements as: "I don't as a rule examine the chest of my asthma patients"; "I don't make a routine practice of getting sciagrams (x-rays) taken of asthmatic chests"; "I don't sterilize the skin before a puncture of it." Dr. Freeman does not believe in the existence of such a phenomenon as dust allergy, nor does he take much stock in feather allergy. Of out-of-door mold allergy he says, "I have never yet been able to make a positive idiotoxic diagnosis in such a case." Perhaps one of the most unusual features of this book is the lengthy, detailed exposition of self inoculation. Virtually all the author's patients are taught to give their own injections and are given a more or less fixed schedule for that purpose.

It would be difficult to obtain agreement among most allergists on many of the above deviations from orthodoxy. Nevertheless, the author must be commended for his independence and convictions. If the pupils have seen fit to veer away from some of the teachings of the master, it is not because they are ungrateful for his pioneering spirit and accomplishments.

The book contains hundreds of anecdotes illustrating various points. The language is brisk, picturesque and readable. For those who would like a vivid picture of hay fever (and other allergies) as a pioneer views it this book is recommended.

Colloid Chemistry: Theoretical and Applied. By Selected International Contributors. Collected and Edited by Jerome Alexander. Volume VII: Theory and Methods, Biology and Medicine, Technological Applications. Cloth. $15. Pp. 736, with illustrations. Reinhold Publishing Corporation, 330 W. 42nd St., New York 18, 1950.

This is part of the well known series on colloid chemistry, the first volume of which was published over 20 years ago and is now out of print. It contains 43 papers by such eminent scientists as Peter Debye, William Harkins and J. W. McBain.

The book is divided into three parts: (1) theory and methods, (2) biology and medicine and (3) technological applications. The second part of the book, consisting of 192 pages, is the part that will most interest the biologist and medical researcher. This section contains papers on surface chemistry in biology, complexes of ions with proteins, catalysts and neocatalysts in biology and medicine, adaptive formation of enzymes and influence of nitrogen nutrition on the enzymatic activity of cells, some of the aspects of the interaction of drugs and

enzymes, genes and biochemical reactions, chemical problems in genetics and disease processes, antibiotic colloidal electrolytes, the tubercle bacillus, blood groups, with special reference to the Rh-Hr factors, and a paper on dental caries. Some of the papers, such as the one on the paper chromatography of amino acids in part 1, may also be of interest to the biologist or biochemist. Part 3 includes papers on such widely varying subjects as the sonic agglomeration of carbon black aerosols, soils; oil well treatment, fluid catalytic process, detergents, cosmetics, asphalt, wood, cellophane, freeze drying, and chemical warfare. Each paper is complete in itself and includes references.

There is no doubt that a part of this volume will be of interest to the biologist, biochemist and medical research worker, but it is also true that about one-half of this book will not interest them.

Cranioplasty. By David L. Reeves, A.B., M.D., Consultant in Neurological Surgery, Santa Barbara Cottage Hospital, Santa Barbara, California. Publication Number 39, American Lecture Series, A Monograph in American Lectures in Surgery. Edited by Michael E. DeBakey, M.D., Professor of Surgery, Chairman, Department of Surgery, Baylor University College of Medicine, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Kentucky. Neurosurgical Division, Editor: Barnes Woodhall, M.D. Cloth. $3. Pp. 119, with 71 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This volume is a brief but comprehensive review of this subject. The author's purpose is to bring up to date all the experimental and clinical data on the repair of skull defects. The immediate stimulus of this work was the advances made in the field of cranioplasty as the result of treatment of a large number of wartime craniocerebral injuries. The author has had extensive experience in this field and was one of the first to use tantalum plate in the repair of skull defect caused by war wounds.

There is a brief historical chapter at the beginning, which gives the status of the subject before 1900. There is a lengthier chapter discussing the types of materials used in cranioplasty since that date. The technics of cranioplasty, indications for use of various corrective materials, complications and results are adequately discussed. One chapter is devoted to illustrative case histories. In the final chapter the author concludes that recent experience with vitallium,® ticonium and tantalum leaves little justification for the use of other metallic materials, and most of those familiar with the subject consider tantalum the metal of choice for the repair of larger defects. Autogenous bone or cartilage continues to offer an adequate means for the repair of smaller skull defects, particularly those involving the frontal sinuses and the region of the glabella.

The monograph is concise and has an extensive bibliography with 402 titles. The format of the book is excellent, and the illustrations are appropriate and clearly reproduced. The subject matter is thoroughly covered. This monograph should be of value to all surgeons who are charged with the care of patients with cranial defects.

Atlas of Human Anatomy: Descriptive and Regional. By M. W. Woerdeman, M.D., F.R.N.A.Sc., Professor of Anatomy and Embryology, University of Amsterdam, Amsterdam. Volume II: Splanchnology, Angiology, Nervous System, Organs of Sense. Cloth. $10. No pagination, with 642 plates and index. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1950.

This volume is devoted to splanchnology, angiology, the nervous system and the organs of sense. The author has given special attention to dental anatomy so that this atlas might be useful in teaching of anatomy classes of schools of dentistry. The bronchial tree has particularly thorough treatment in view of the increasing interest in it by thoracic surgeons. The portion devoted to the anatomy of the nervous system included only those structures that can be seen with the naked eye or a small magnifying glass. The diagrams of the lymphatic system are particularly well done. The drawings are excellent and entirely adequate from the standpoint of gross anatomy. The illustrations are both accurate and artistic. This atlas of gross anatomy will be welcomed by both teachers and students of anatomy.

Modern Trends in Obstetrics and Gynaecology. Edited by Kenneth Bowes, M.D., M.S., M.B., Obstetric Physician, St. Thomas's Hospital, London. Cloth. $12. Pp. 778, with 139 illustrations. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 49 E. 33rd St., New York 16, 1950.

This book was written by a large number of obstetricians and gynecologists, the majority of whom are British. There are 50 chapters, each covering a separate subject. The customary aspects of obstetrics and gynecology are covered, and there is material on related problems, such as statistical and genetic problems, psychological factors in obstetrics and gynecology, radioisotopes in research, social factors in obstetrics and the law in relation to obstetrics and gynecology.

Because so many authors contributed to this book, the allotment of space is uneven; many chapters are too short and others too long. For example, the chapter on operative obstetrics, which includes forceps delivery, occiput posterior positions, breech delivery, twins, flying squads, episiotomy, surgical induction of labor and cesarean section occupies only 13 pages, but the chapter on the cytology of the uterine epithelia (excluding the cervix) occupies 20 pages, and the chapter on the cytology of the vaginal smear takes up 20 pages. The chapter on fertility and sterility, an important one indeed, is given only 12 pages, but 26 pages are devoted to the pathology and clinical characteristics of ovarian neoplasms. Nevertheless, each chapter has been written by an authority and contains the essential information on the subject covered.

A minor point, which should be omitted in the second edition, is the statement (page 269) that symphysiotomy has been upheld "by no less an authority than Whitridge Williams in the United States of America." Dr. Williams died almost 20 years ago and should not now be quoted as favoring an operation that most obstetricians consider to be obsolete.

In spite of the large number of contributors, the book reads smoothly. At the end of each chapter is a useful list of references. There are numerous illustrations, and nearly all are beautifully reproduced. The book is well printed and well bound and contains a vast amount of valuable data.

A Symposium on Steroid Hormones. Edited by Edgar S. Gordon. Cloth. $6.50. Pp. 396, with illustrations. The University of Wisconsin Press, 811 State St., Madison 5, 1950.

This symposium was held at the University of Wisconsin and sponsored by the Wisconsin Alumni Research Foundation. Included with the papers are brief abstracts of several round table discussions held during the conference. A wide variety of the many aspects of steroid hormones are covered. Appropriately, the first two presentations deal with the historical development of knowledge of the chemistry and physiology of the steroids. Against this setting, present day concepts of the biosynthesis of steroids and their metabolism in humans are discussed. Specific aspects of steroid metabolism are discussed, with particular emphasis on protein metabolism. Two papers summarize briefly current information on the tumorigenic and antitumorigenic effects of these hormones. Much attention is paid to practical use of steroid hormones in promotion of growth and fattening of animals and the effects of these hormones on pregnancy and lactation. These papers will be of interest to veterinarians and animal breeders. Sex determination and differentiation are treated at length in three papers. Hormonal interrelationships are also discussed.

The abstracts of the round table discussions are disappointing, since they are merely summaries and do not present much data, nor do they provide information or references on much of the recent stimulating work in the fields covered by the discussions.

As is so often the case in a series of papers from a symposium, the quality is uneven. Some papers are excellent and informative, others are good because of the review of past work presented. Unfortunately, a few, by comparison, fall far short of expectations and provide little real information for serious workers in the field. It is also rather disconcerting to the reader to find papers presenting a broad summary of a subject and then to find others confined to one or two details, thus leaving gaps that are not filled by other discussions. For this reason, the symposium, as printed, cannot be considered a complete review or summary of the subject of steroid

hormones. Despite these criticisms, this volume is of value to workers in this field, particularly those interested in the metabolic aspects of steroids. The historical sections can serve admirably to orient workers in this field, and in many instances the references cited will serve to guide the reader to more adequate sources of information.

Progress in Gynecology, Volume II. Edited by Joe V. Meigs, M.D., Clinical Professor of Gynecology, Harvard Medical School, Boston, and Somers H. Sturgis, M.D., Clinical Associate in Gynecology, Harvard Medical School, Boston. Cloth. $9.50. Pp. 821, with illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

The second volume of this book was prepared by 78 contributors, several of whom are European. As in the first volume, each author wrote a chapter on the subject in which he was especially interested. Because there are so many authors, there is some unevenness. Some of the chapters are very long, and others are very short. The chapter on androgen therapy in gynecology occupies 31 pages, but the chapter on nonfunctioning benign tumors of the ovary takes up less than two pages, including the list of references. The chapter on hormone assays contains six pages of text and two and a half pages of references. In spite of the title of the book, three chapters are devoted to obstetrics. One deals with diagnostic tests of pregnancy, another with hydatidiform mole and chorioepthelioma and the third with threatened abortion.

Because nearly all the contributors are outstanding authorities, most of the chapters contain valuable and practical information. It is difficult and perhaps unfair to select one or more of the 78 chapters for discussion, but nearly all the data coincide with the teachings of the leading gynecologists. Every aspect of gynecology is covered, so that the reader is made acquainted with the available factual knowledge of present day gynecology. There are numerous illustrations, which are well reproduced and instructive. The paper is sturdy, and the book is well bound. Meigs and Sturgis are to be congratulated on having produced another and better volume dealing with progress in gynecology.

Evaluation of Industrial Disability. By Packard Thurber, M.D., and Packard Thurber, Jr., M.D. Prepared by the Committee for Standardization of Joint Measurements in Industrial Injury Cases of the California Medical Association and Industrial Accident Commission, State of California. Cloth. $4. Pp. 89, with 80 illustrations. Oxford University Press, 114 Fifth Ave., New York 11, 1950.

This manual was designed to establish a uniform procedure of disability evaluation that would meet all the requirements of the Industrial Accident Commission of the State of California and also would be readily understood and practically applicable by the industrial surgeon, claims examiners, claims attorneys and members of the commission. The authors make no claim for originality in this system of disability evaluation. The procedures used are clearly and concisely stated and adequately illustrated by photographs demonstrating the technics on living subjects.

A sincere effort to bring order out of confusion in this field is to be commended. The value of the manual would have been enhanced by recognition of the influence of the human factors that so frequently complicate disability evaluation. The importance of early and periodic evaluations during the convalescent and rehabilitation phases should be stressed. A physical evaluation is essential, but we should not lose sight of the importance of a work performance rating. A toolmaker who has suffered the loss of four fingers on one hand is much more seriously handicapped than his superintendent would be with the same injury.

The technic of using the protractor in making joint motion measurements is difficult to standardize so that different examiners will always obtain the same results. A statement should be made as to when and under what conditions a final decision can be made on the question of permanent disability.

In the preface the authors have stressed the importance of uniformity, completeness and adequacy of the medical reports in the creation of a written picture that can be recreated by laymen as well as other medical men. It is not definitely stated but might be inferred that this manual would find application beyond the borders of the state of California.

Cell Physiology and Pharmacology. By J. F. Danielli, Ph.D., D.Sc., Professor of Zoology, King's College, London. Cloth. $3. Pp. 156, with illustrations. Elsevier Publishing Company, Inc., 250 Fifth Ave., New York 1; 118 Spuistraat, Amsterdam-C, Netherlands, 1950.

According to the author, the material in this book was culled from a series of lectures at University College, London. It is presented in an interesting, well integrated and authoritative manner, although it is perhaps regrettable that Professor Danielli did not see fit to expand certain portions of the text and document the subjects more thoroughly. His discussions on the action of drugs on cell surfaces, on permeability and on enzyme systems offer a more comprehensive (although less detailed) survey than is ordinarily found in books on this subject. The text also outlines rather fully the reasoning that must be applied to any study of drug mechanism.

Possible drug actions are discussed in terms of surface actions, alteration of membrane permeability, and enzyme inhibition. The last named of these is the least successfully dealt with and the author seems to hold an unnecessarily discouraged view on this subject. However, some of his examples are badly chosen, e. g., the actions of hydrocyanic acid and dichlorophenol, both of which now appear to be explainable on rather simple grounds. Also, the statement that "The conclusion [based on the work of Dixon and Needham] appears that all substances inhibiting hexokinase are vesicant" is strongly disputable. In spite of these criticisms, the book would be a valuable addition to the library of those interested in the mechanisms of drug action at the cellular and subcellular level.

Survival under Atomic Attack: You Can Survive. Executive Office of the President, National Security Resources Board, Civil Defense Office, NSRB Doc. 130. Paper. 10 cents. Pp. 31. Superintendent of Documents, Government Printing Office, Washington 25, D. C., 1950.

The recommendations of this little booklet, which elaborates on the statement that "The secrets of survival are: know the bomb's true dangers; know the steps you can take to escape them" in an admirably nontechnical and matter of fact manner, should be studied by every adult and explained to every child in this country. It begins with a dispassionate appraisal of the destructive capacities of a modern atomic bomb and of the individual chances for survival at varying distances from the explosion. The relative importance of blast injuries, burns and radiation injuries from air, ground and underwater bursts is outlined, as well as the protective measures against each that should be taken by the individual and the family.

Initial, induced and residual radioactivity are explained simply and in a manner that should allay many current misapprehensions concerning them. The effects of each type of radiation as well as the proper protective measures for the person and his food and water supply are outlined. This booklet ends with some sound advice against panic and interference with the essential civil defense services. With this little booklet the government has taken an impressive stride toward teaching the population to live with rather than in fear of the threat of this bomb.

Pathologische Histologie: Ein Unterrichtskurs für Studierende und Ärzte. Von Dr. Max Borst. O. Ö. Professor der allgemeinen Pathologie und der pathologischen Anatomie an der Universität München. Fourth edition. Paper. 94.50 marks. Pp. 539, with 405 illustrations. J. F. Bergmann, Trogerstrasse 56, Munich 27 [Springer-Verlag, Reichpietschufer 20, Berlin W35], 1950.

This edition of a classical textbook for the German student of pathology presents relatively few changes in the arrangement of the older editions, the first of which appeared almost 30 years ago, but much new material has been added. The illustrations, which represent an important and useful documentation of the material, are mostly drawings, many new, some in black and white and many in color. They are well chosen, technically excellent and in many ways more instructive than photomicrographs. They may be of value to the American student. The text emphasizes histological change but also considers gross anatomic alterations, pathogenesis and some symptomatology. The material is presented in chapters covering the different organs, with a final chapter dealing with

tumors. The viewpoint of the present text does not depart much from that of 30 years ago, and modern thoughts in pathology find relatively little consideration. The rather complete information given makes it a good reference book, and useful information not available in other textbooks can occasionally be found. The language is extremely clear, and the book is readable. It represents an excellent didactic compilation for the student of pathology who reads German but except for the illustrations will offer little to the American pathologist.

The Antihistamines: Their Clinical Application. By Samuel M. Feinberg, M.D., Associate Professor of Medicine, Northwestern University Medical School, Chicago, Saul Malkiel, Ph.D., M.D., Assistant Professor of Medicine, Northwestern University Medical School, Chicago, and Alan R. Feinberg, M.D., Clinical Assistant in Medicine, Northwestern University Medical School, Chicago. Cloth. $4. Pp. 291, with 27 illustrations. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1950.

The authors present this monograph to condense the facts and to present certain practical applications of the antihistamines. The volume is primarily clinical in orientation, but experimental studies leading up to the development of the histamine theory and the antihistamines are discussed. Clinical observations include the use of the antihistamines in respiratory allergy, the dermatoses and various miscellaneous and possibly allergic conditions. There is a thorough review of the toxic effects of the agents. The appendix lists 16 antihistamines, which are promoted under various trade names. This appendix should prove valuable to physicians in their attempt to distinguish between the claims for various antihistamines and should aid in identification of the specific agent employed.

Annual Review of Biochemistry. Volume XIX. J. Murray Luck, Editor, Hubert S. Loring and Gordon MacKinney, Associate Editors. Cloth. $6. Pp. 596. Annual Reviews, Inc., Stanford, California, 1950.

This volume contains a few brief paragraphs of tribute as a token of respect and appreciation to the memory of Dennis Robert Hoagland. Professor Hoagland died Sept. 5, 1949. He had served on the editorial committee and board of directors of the Review from the inception of the series.

The topics reviewed in this volume include biologic oxidations; proteolytic enzymes; nonoxidative, nonproteolytic enzymes; chemistry and metabolism of carbohydrates, lipids, amino acids and proteins, and steroid hormones; nucleic acids, purines and pyridines; chemistry of hormones; soluble vitamins; nutrition; muscle; biochemistry of neoplastic tissue; chemical composition of blood plasma and serum; pyrolle pigments; immunochemistry; biochemistry of antibiotics, and partition chromatography. These topics are reviewed by such workers as G. Pincus, A. White, F. B. Straub, C. Carruthers, R. Lemberg and H. E. Carter, among a long list of experts. The presentation, style, format and binding are again at the high level that has been maintained in previous issues.

Non-Valvular Heart Disease. By Henry A. Christian, A.M., M.D., LL.D. (Reprinted from Oxford Loose-Leaf Medicine with the same page numbers as in that work.) Cloth. $2. Pp. 492(75)-492(92-54). Oxford University Press, 114 Fifth Ave., New York 11, 1950.

Since the term nonvalvular heart disease is not generally used, Dr. Christian has defined it as "that form of heart disease in which myocardial insufficiency with or without myocarditis has developed in the absence of lesions of heart valves or pericardium." The book is divided into two parts, the first dealing with the diagnosis, prognosis and treatment of the various types of acute, subacute and chronic myocarditis and the second dealing with other types of nonvalvular heart disease, including hypertensive heart disease. In this section there is a fairly comprehensive discussion of the treatment of congestive heart failure, including salt restriction and the use of digitalis and the diuretics. However, there is no discussion of the diagnosis, treatment or prognosis of myocardial infarction or even, for that matter, of coronary artery insufficiency. These important conditions should come within the scope of nonvalvular heart disease as defined by the author. There is a bibliography of selected articles. The book is written in the clear, forceful style for which Dr. Christian is noted. Many who know Dr. Christian as one of the great men of American medicine would like to own this book in order to get his personal views on this particular phase of diseases of the heart.

Disorders of the Blood: Diagnosis, Pathology, Treatment, Technique. By Sir Lionel E. H. Whitby, C.V.O., M.C., M.D., Regius Professor of Physic in the University of Cambridge, Cambridge, and C. J. C. Britton, M.D., D.P.H., Physician and Hæmatologist to the Prince of Wales's Hospital, London. Sixth edition. Cloth. $8. Pp. 759, with 106 illustrations. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1950.

This now well known English textbook of hematology, based on the experience and work of the authors and the results of the studies of other investigators, is divided into 24 chapters and follows the general outline of the previous editions. The literature has been reviewed through 1949. The chapters dealing with hemopoietic metabolism, coagulation, the hemolytic anemias, leukemia, hemagglutination, pigment metabolism and technic have been revised. The text has been increased by 85 pages, and four new color plates and 23 other illustrations have been added.

The field of hematology is adequately covered, beginning with the origin, development, functions and fate of the cells of the blood and including a general discussion of abnormal hemopoiesis, the principles and practice of hematological diagnosis, the various anemias, hemorrhagic diseases, polycythemia, the leukemias, the lymphomas, blood transfusion and technic. The subject matter is well organized, and the material is presented in a readable fashion. The format of the book is pleasing; the illustrations are good, and the color plates are satisfactory although not remarkable. Each chapter is concluded by a concise summary and an excellent bibliography. This book is a competent piece of work and can be recommended to medical students and physicians. For workers in the special field of hematology, the biochemical and physiological aspects of hematology are not covered as comprehensively as elsewhere.

Tratado de endocrinología clínica. Por Mario Schteingart. Tomos I & II. Cloth. Pp. 475; 487-1185, with 246 illustrations. Editorial bibliográfica argentina, Cangallo 860, Buenos Aires, 1950.

The author, a well known practicing endocrinologist of Buenos Aires, has written this book along the conventional pattern. The greater part of volume 1 is devoted to the historical evolution of endocrinology, fundamental concepts of endocrine function, basal metabolism and the etiology, symptomatology and treatment of endocrine disorders generally. This is followed by a more detailed description of hypophyseal disorders. Volume 2 is devoted to the thyroid, parathryroid, adrenal, pancreas, reproductive system, thymus and pineal, with a final chapter on metabolic endocrine syndromes.

The book is well written in a clear and succinct style. The author has drawn freely on the available English, German, French and Italian literature, and the book is, therefore, more complete than the usual single volume textbook in endocrinology. However, the author does not bring to the subject that critical sense with which he might well have reduced his subject to a single volume. Despite this criticism, the book can be recommended to the Spanish reader as, in general, sound and complete. The printing is excellent, but the black and white illustrations, particularly those of roentgenograms, are so poor at times as to be useless.

The 1950 Year Book of Medicine (May, 1949-May, 1950). Edited by Paul B. Beeson, M.D., and others. Cloth. $5. Pp. 819, with 136 illustrations. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1950.

This is a valuable little volume that rapidly surveys recent advances in infectious diseases, diseases of the blood and blood-forming organs, heart, blood vessels, kidney and digestive system. An interesting addition to the present volume is the review article by the editors heading each section. In these reviews, progress made in the last decade under the various headings is considered. The literature surveyed is of necessity limited to those articles that the editors considered most important. Nevertheless, the volume is of value to practitioners who desire to keep abreast of recent developments in the fields reviewed.

QUERIES AND MINOR NOTES

IMMUNITY TO DIPHTHERIA

TO THE EDITOR:—*In* THE JOURNAL *of April 8, 1950 (page 1116) you discussed immunity to tetanus. I should appreciate a similar discussion of immunity to diphtheria, stressing the points of active versus passive immunization at the time of exposure to diphtheria and the use of toxoid as a booster simultaneously with antitoxin, for persons who have been exposed to the disease and who have been previously immunized with toxoid.*

Charles W. Taintor, M.D., Corinth, Miss.

ANSWER.—The same general principles discussed in the abovementioned query on tetanus apply to prophylaxis in diphtheria. An intramuscular injection of 10,000 units of diphtheria antitoxin—instead of the 1,000 units so commonly employed—confers prompt serologic immunity (Top, F. H., and others: Communicable Diseases, ed. 2, C. V. Mosby Company, St. Louis, 1947, p. 204) of a passive type, irrespective of the status of active immunity. If the patient has been inoculated previously and adequately with diphtheria toxoid (alone or combined with other antigens, such as tetanus toxoid), this passive immunity may be both augmented—with a delay of four to seven days—and prolonged. The amount of diphtheria toxoid required is 0.10 cc., although doses up to 0.50 cc. may be used if desired. All the precautions proposed for the accurate quantitative administration of tetanus toxoid are applicable to this procedure. If the patient has not been actively immunized previously with diphtheria toxoid, the simultaneous injection of antitoxin and toxoid interferes with the emergence of active immunity, i. e., combined passive-active immunization is destined to fail in the nonactively immunized subject. Apparently the passively introduced antitoxin shields the responsive tissues of the body from the direct stimulating action of the diphtheria toxoid. However, the toxoid does not interfere with the specific effects of antitoxin.

The decision to employ diphtheria antitoxin or toxoid, alone or in combination, is governed by the circumstances. The following information is desirable: 1. Has the patient been exposed to virulent or avirulent organisms, intimately or casually, directly or indirectly, for a short or long period of time, at home or elsewhere? 2. Does the exposed person have a history of active immunity in terms of (*a*) known history of diphtheria toxoid injections, (*b*) negative Schick test independent of known circumstances or after a recorded series of inoculations? The fact that a negative Schick test is not an absolutely infallible index of immunity must be recognized (Lapin, J. H.: Advances in Pediatrics, vol. 4, New York, Interscience Publishers Inc., 1949). 3. Does the throat culture reveal the presence of diphtheria bacilli, the virulent or avirulent character of which must await leisurely demonstration?

Although the validity of active immunization against diphtheria as a routine procedure has earned statistical recognition, the limitations of this procedure are known (Lapin). The shortcomings reported in various publications might be removed or reduced by the more highly refined toxoids now available. However, since the major segment of the present population has been inoculated with the less refined toxoids, implicit reliance on a history of injections is not to be accepted as *prima facie* evidence of protection. Consequently, certain indications may be formulated for the combined use of antitoxin (10,000 units) and toxoid (0.10 cc. to 0.50 cc.) in patients previously inoculated with diphtheria toxoid: 1. The series of diphtheria toxoid injections has not been completed (inadequate number of doses, or failure to administer last dose 10 to 14 days preceding clinical exposure). 2. The level of active immunity might be low because booster injections have not been given at all or too long ago. 3. The type of diphtheria prevalent is of a particularly severe type. 4. Instances of clinical diphtheria have been noted among those with accurate histories of active immunization (recently or many years ago). 5. The immunity of the exposed subjects is indeterminate (vague history concerning injections or indefinite Schick test status). 6. A delay in prophylaxis has occurred, so that reliance cannot be placed on the relatively slow emergence of active immunity from the booster dose of toxoid. 7. The response to a booster injection of toxoid might be impaired because of poor general health, anemia resulting from one or more causes, malnutrition with associated hypoproteinemia or other causes of general debility.

Under conditions of casual exposure, and in the presence of circumstances which validate a conservative, but reasonably dependable, approach (in institutions, hospitals, sanatoriums), the following outline represents a flexible approach to the general problem:

A. Positive diphtheria cultures (strict isolation is a general procedure)

(1) Negative Schick test (by history or actual testing)
Booster dose of diphtheria toxoid (0.10 to 0.50 cc., alone or with tetanus toxoid)
+
Penicillin (orally and intramuscularly to eliminate virulent bacilli)
+
A therapeutic dose of diphtheria antitoxin intramuscularly (40,000 units or more) if close clinical observation indicates the probable onset of diphtheria (fever, catarrhal or membranous pharyngitis, tonsillitis, rhinopharyngitis not explainable on any other basis)

(2) Positive Schick test (by history or actual testing)
Omit the booster dose of diphtheria toxoid (obviously not a rational procedure)
+
Penicillin (orally and intramuscularly to clear virulent bacilli)
+
A therapeutic (not a prophylactic) dose of diphtheria antitoxin (40,000 units or more) under the following program:
(*a*) Immediately, or
(*b*) Only after close clinical observation indicates the probable onset of clinical diphtheria

B. Negative diphtheria cultures (prophylactic isolation is a desirable procedure)

(1) Negative Schick test (by history or actual testing)
Inject a booster dose of diphtheria toxoid (alone or combined with other antigens) in an amount of 0.10 cc., to 0.50 cc., the former dose being adequate if quantitatively injected and retained (absence of leaks from the sites of entrance of the needles)

(2) Positive Schick test (history or actual testing)
Attempt to accelerate the development of active immunity in the following manner:
(*a*) Materials: diphtheria toxoid (alone or combined with other antigens)
(*b*) Dose: 0.10 to 0.20 cc.
(*c*) Route: subcutaneous (with alum-precipitated material) or subcutaneous, intracutaneous, or intramuscular with fluid materials

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

(*d*) Number of doses: preferably five

(*e*) Interval between individual injections: five to seven days

(*f*) Time for performance of follow-up Schick test: not earlier than 14 days after last injection

(*g*) Titrations of blood serum specimens: this may be accomplished by collaboration with adequately supplied laboratories or with commercial biologic institutions when essential. The titer is the final court of appeal in assessing the status of active immunity (Lapin)

COLECTOMY FOR ULCERATIVE COLITIS

To the Editor:—*A white woman, aged 26, had a complete colectomy with a permanent ileostomy for chronic ulcerative colitis one year ago. Now she is bothered by loud, audible, gurgling noises and an offensive odor. What may be done to mitigate these obnoxious symptoms?*

Paul E. Rauschenbach, M.D., Paterson, N. J.

Answer.—Permanent control or satisfactory amelioration of this condition, under the circumstances, may be difficult, especially if the stools originally had an offensive odor, which characterizes the stools of some otherwise healthy persons. Aerophagy, obstipation or partial obstruction of the small bowel from whatever cause should be excluded as causative of the borborygmus. The treatment indicated appears to be chiefly one that will effect a change in the intestinal flora, that is, from putrefactive to acidophilic. This may be accompanied by a preliminary course of sulfonamides or antibiotics followed by a lactovegetarian diet and adsorbents for an indefinite period. Succinylsulfathiazole (sulfasuxidine®) 0.25 Gm. per kilogram of body weight for 10 days, if not contraindicated, can be given; terramycin or aureomycin, 250 mg. capsules four times daily for a week, may be prescribed instead. Vegetable proteins such as peanut butter, soya bean powder, powdered milk or a palatable protein hydrolysate should replace animal proteins such as meat and eggs. The lactovegetarian diet may be reinforced by a quart of acidophilus milk daily, to which is added lactose or dextrimaltose. Adsorbents consist of powdered charcoal, kaolin or kaopectate, which are administered 15 minutes before each meal and at bedtime.

BOW LEGS

To the Editor:—*An infant 15 months old has decided bowing of the legs. He started to walk at the age of 13 months. He weighs 27 pounds (12,247 Gm.), is well developed, has 16 teeth and is normal in every other respect. Roentgenograms of the lower extremities and pelvis do not show any abnormalities. There are no other signs of rickets. There is some familial tendency to bow legs on the father's side. Can you suggest any treatment?* *M.D., Illinois.*

Answer.—While rickets has apparently been ruled out, it might be well to check the blood phosphorus and calcium and the blood phosphatase in confirmation of the diagnosis of the absence of rickets. If results of these laboratory tests are found to be normal the usual preventive dosage of vitamin D should be prescribed, 400 to 800 U. S. P. units daily. However, in active rickets a much larger dose would be required, 2,200 U. S. P. units daily.

Unilateral bowing may be due to epiphysitis. Osteochondritis deformans tibiae, also termed tibiae vara (nonrachitic bow legs), usually is bilateral in infants and unilateral in adolescents and is manifested by atrophy and rarefaction of the epiphysis. There certainly is a familial tendency to bow legs, and in unusually heavy infants who walk early the legs tend to bow from the pressure of their weight on normal bones. Alfred Hess (*Am. J. Dis. Child.* 41:1309, 1931) described a group of infants without evidence of rickets who had soft heads and chests, and a number of these infants had bowed legs. Besides antirachitic therapy already mentioned, gentle massage and discouragement of weight bearing may be effective. Braces are ineffective. In extreme cases osteotomy may be required.

HYPERHIDROSIS IN A PARAPLEGIC

To the Editor:—*A woman was in a car accident 17 years ago, and sustained a high spinal cord injury that left her lower extremities completely paralyzed. She has about 50 per cent use of her upper extremities. She is confined either to bed or a wheel chair. She is bright, cheerful and eager to make her own way, since she has no means of support except what she derives from magazine subscriptions, insurance and other business she can conduct from her wheel chair. She has frequent spells of hyperhidrosis which last from minutes to hours and leave her very uncomfortable. I have tried the usual measures but they give little relief. She uses an indwelling catheter and is of the opinion that, when the protruding portion of the catheter impinges on something or is moved in a certain way, the hyperhidrosis is stimulated. She has tried all sorts of seats to prevent this but has been unsuccessful. Do you know of any mechanism which may be causing the hyperhidrosis? Do you know of any way in which it may be prevented?*

Samuel M. Ramer, M.D., Silver City, N. Mex.

Answer.—This type of reaction is not uncommon, especially in cervical and high dorsal lesions. In response to manipulation of the rectum or the internal sphincter, distention of the bladder or bowel, abnormal sweating, hypertension, headache and extreme nervousness have been noted. It has been observed by Heimburger, Freeman and Wilde (*J. Neurosurg.* 5: 154, 1948) that procaine hydrochloride block of the fourth sacral nerve root produced complete alleviation of symptoms and that spinal anesthesia abolishes distressing symptoms, especially when it could be determined that the level of anesthesia had been raised. Meirowsky, following this lead, has treated successfully a number of patients by total rhizotomy of the cauda equina, and French and Bors at the Birmingham Veterans Administration Hospital have treated patients successfully by posterior rhizotomy only, extending from the tenth thoracic nerve root down through the last sacral root. Sympathectomy has been of little avail, except when complete resection of the ganglionated chain is accomplished. The symptoms in general can be controlled with belladonna. It would seem that abandonment of the catheter could not be advised for this patient since she does not have use of her hands; therefore the most highly recommended procedure would probably be posterior rhizotomy done under controlled conditions and under local anesthesia. Controlled conditions mean cystometric readings during the operation and reproduction of the distress during operation with the abolition of this phenomenon by selective root section being demonstrated before closure.

The subarachnoid injection of alcohol (Sheldon and Bors, *J. Neurosurg.* 5:385, 1948) or the injection of alcohol into one or more of the sacral nerves is another form of treatment that might be considered in this case. The new drug Banthine® (beta-diethylaminoethyl xanthene-9-carboxylate methobromide) has been described briefly in a preliminary article by Dr. Keith Grimson and co-workers of Duke University (*J. A. M. A.* 143:1331 [Aug. 12] 1950). Dramatic results were observed following the use of this drug in a patient suffering from hyperhidrosis.

PERLÈCHE

To the Editor:—*A married woman, aged 39, has been suffering for the past two years from cracking at the corners of the mouth (Foule Winkel). I have tried vitamin B therapy and antiseptic ointments without success. The radiation treatment was given on two occasions to stop menorrhagia. She has not menstruated for eight years. Is there anything new in the treatment of the mouth corners?*

Isidor Adler, M.D., Buffalo.

Answer.—Perlèche (cracking at the corners of the mouth) occurs as a result of streptococci or Monilia infection, vitamin deficiency, maceration due to overhanging lips or poorly fitted dentures or hypersensitivity to drugs. The condition may be treated with antibiotic agents, antiseptics or fungicidal preparations, multiple vitamins and the avoidance of irritating agents.

TREATMENT OF IDIOPATHIC TETANY

To the Editor:—*An adult has idiopathic tetany. She has mild occasional relapses with muscle pain, which is relieved by intravenous administration of calcium. I have given her hydrochloric acid, calcium salts by mouth and small amounts of vitamin D and lactose, but these do not prevent the attacks. During an acute attack I used parathormone briefly, but I discontinued that as soon as the acute episode was over. Can I give her large doses of vitamin D to facilitate calcium absorption from the bowel? What is a safe upper limit of dosage that will not cause undue porosity of the bones? With a dose of 50,000 units per day she is kept in comfortable condition. Is this enough to cause osteoporosis or excess mobilization of calcium into viscera and other soft tissues?*

Fletcher B. Taylor, M.D., Oakland, Calif.

Answer.—The treatment of idiopathic tetany (hypoparathyroidism) with activated sterols (vitamin D, calciferol, dihydrotachysterol) must be highly individualized, and no hard and fast rules as to dosage can be given. However, 50,000 units of vitamin D daily is near the lower limit of dosage necessary to maintain an adult patient free from symptoms and presumably should not harm the patient. Any patient receiving such doses of vitamin D should have occasional serum calcium determinations performed, and the level of calcium in the serum should not be permitted to rise above approximately 10 mg. per 100 cc. The Sulkowitch test, which indicates any excessive excretion of calcium in the urine, is a valuable adjunct to therapy, and this test may be performed by the patient. Further details may be obtained in "New and Nonofficial Remedies" (Philadelphia, J. B. Lippincott Company, 1950, pp. 496-497) and "Glandular Physiology and Therapy" (Chicago, American Medical Association, 1942, chap. 27).

POLYETHYLENE TUBING

To the Editor:—*Is it thoroughly ascertained that polyethylene or synthetic derivatives of that sort may be used for surgical purposes without danger of cancer?*

H. Hinglois, M.D., Paris, France.

Answer.—At present there is no clinical or laboratory evidence that the relatively inert polyethylene tubing has any carcinogenic properties. The occasional inflammatory reaction about the tubing is not believed to be indicative of the reaction to a tissue irritant with potential malignant transformation as its outcome. In addition, the chemical construction of the tubing is devoid of known carcinogenic compounds.

TREATMENT OF SCROFULA

To the Editor:—*What is the present treatment for scrofula (tuberculosis of the cervical lymph nodes)? The patient is receiving high voltage roentgen therapy from a competent radiologist; in addition, he receives 2 Gm. of dihydrostreptomycin weekly, 1 Gm. into each hip, as advised at the local tuberculosis hospital. Duration of the disease is one year, and diagnosis was made from biopsy of a node. Drainage has been present for one month. What improvement may this patient expect and over what period of time is treatment required? His physical condition is otherwise good.* *J. D. Marshall, M.D., Portland, Ore.*

Answer.—The treatment depends on many factors, such as duration of the disease, condition of the nodes and whether there is drainage. In the case under question, the dihydrostreptomycin in 2 Gm. doses once a week is quite proper so far as it goes. Most workers give 12-15 Gm. of the sodium salt of paraaminosalicylic acid in addition. The latter is given in four equally divided doses in water, usually just before or with meals. This program should be followed for 60 days. By that time, some change should be noted. If healing is imminent, treatment should be continued to complete resolution of the disease, which may require up to three or four months. If the cluster of nodes is extensive and resolution becomes arrested, surgical removal is indicated and then further drug treatment. The roentgen therapy will sometimes resolve early lymph node lesions but is of no use in a draining sinus.

FALSE POSITIVE WASSERMANN REACTIONS AND INFECTIOUS HEPATITIS

To the Editor:—*1. Is infectious hepatitis prone to yield false positive Wassermann reactions? 2. Is antisyphilitic therapy, bismuth and penicillin, contraindicated in convalescent infectious hepatitis? The last two icterus indexes were 12.2 and 11.8.*

Max M. Goldberg, M.D., New Orleans.

Answer.—Infectious hepatitis, in common with other types of liver disease, will occasionally give false positive serologic responses. One would, however, expect to encounter nothing but weakly positive reactions in most instances. Antisyphilitic therapy with arsenic and heavy metals is contraindicated in the convalescent stage of infectious hepatitis. Penicillin, however, can be given without harm. In this instance it would be well to repeat both the serologic tests and appropriate studies of liver function at least three months after the hepatitis has subsided; a final decision as to diagnosis and appropriate therapy could probably be made at that time.

NEOPLASM OF THE LARYNX

To the Editor:—*I removed a neoplasm from the larynx of a man aged 34, and the microscopic diagnosis was a "benign polyp showing mild pachydermia." Subsequently he applied for life insurance and was given a high rate because of the above history. He was informed that the rating was due to the probability of cancer in later life. What is the likelihood of the occurrence of cancer at the site of such a polyp?* *Manfrid J. Gerstley, M.D., Skaneateles, N. Y.*

Answer.—If by the term "polyp" is meant not a benign new growth but rather a localized swelling of the mucosa, such a condition is not a predisposing factor to the appearance of cancer at a later date. Whatever the cause of carcinoma in the larynx may be, there is no reason to believe that it springs from these localized edematous changes. The pachydermia mentioned is seen at times on the surface of polyps and is probably due to the rubbing to which this surface is exposed. Carcinoma of the larynx occurring in a situation as outlined above must be credited to coincidence.

PREPUBERTAL GYNECOMASTIA

To the Editor:—*A 13 year old boy has a circumscribed enlargement of the subcutaneous tissue, about the size of a dime and slightly painful when touched, behind the left nipple. There is no discharge from the nipples. The boy is otherwise normal. What diagnosis and treatment would you suggest?* *M.D., New York.*

Answer.—While the information in this case is brief and incomplete, one would infer that this boy has unilateral prepubertal gynecomastia. This condition almost invariably affects one breast, usually the left. It requires no treatment and may disappear spontaneously. Occasionally, in boys of the Fröhlich type, with associated hypogonadism, chorionic gonadotropin or thyroid may be administered. This treatment, however, should be withheld until the clinical observation over a period of at least six months has convinced the examiner that no spontaneous regression has occurred. Pain in this instance is not significant.

THE EPINEPHRINE TEST

To the Editor:—*Can you give me any information concerning the epinephrine tolerance test and its relation to splenic panhematopenia?* *Jack Troy, M.D., Whiting, Ind.*

Answer.—When confronted with a peripheral circulating cytopenia, involving red blood cells, granulocytes and/or thrombocytes, the clinical hematologist immediately focuses attention on the state of cell production in the bone marrow. If, on direct examination, the marrow is found to be normal or hyperplastic for the very elements specifically deficient in the blood, a peripheral mechanism must be sought. The spleen

under such circumstances is suspected until excluded by appropriate tests. The technic of the so-called epinephrine test is as follows: During a 15 to 30 minute base line period, under basal metabolic conditions, the pulse rate and blood pressure are determined, two preliminary complete peripheral blood studies are made and the splenic outline is traced. Depending on the age and vascular integrity of the patient, 0.5 to 1 cc. of 1:1,000 epinephrine hydrochloride is injected subcutaneously. Blood studies are repeated at two to 10 minute intervals until the pulse rate and blood pressure reach their maximum stimulation, which usually coincides with the greatest contraction of the spleen and, therefore, the maximum increase in circulating blood cells. The peripheral blood studies are then continued at five to 15 minute intervals until the spleen has completely relaxed and the circulating blood elements have completed a diphasic curve, reflecting, in order, splenic (1) tonus, (2) contraction, (3) hyper-relaxation and (4) tonus.

The extent to which all circulating formed elements of the blood participate in the transitory increase during splenic contraction, and fall below the base line during splenic hyper-relaxation, represents what may be spoken of as the "vital capacity" of the spleen as a reservoir for sequestered blood elements.

CONGENITAL DEAFNESS

To the Editor:—*A 4½ month old child is apparently completely deaf. There is no deafness in the family, and the only unusual factors during the mother's pregnancy were the use of average amounts of dimenhydrinate (dramamine®) for several weeks, for nausea, and a fairly severe sensitivity reaction to penicillin, consisting of urticaria and edema of the feet, which persisted for four or five weeks. Could either of the above factors have contributed to the deafness in the child?*

M.D., California.

Answer.—Impaired hearing dating from birth may be endogenous, in which case it is due to a malformation or aplasia of the cochlear structures due to an inherited recessive characteristic; or it may be exogenous, the result of a virus infection in the mother during pregnancy, particularly rubella during the first three months of pregnancy; or to drug intoxication in the mother during pregnancy, particularly from quinine, or to a birth injury with damage to the cerebral hearing centers. In the case described it is conceivable that it could be the result of the penicillin, although there are no previously reported cases of this sort. In view of the normal family history and, if the child shows no other evidences of cerebral damage, the allergic mother's reaction to penicillin would seem to be the most probable explanation for the impaired hearing in this case.

AUTOHEMOTHERAPY AND URTICARIA

To the Editor:—*Is autohemotherapy still an accepted therapy for hives and for the rash sometimes caused by penicillin injections? What are the indications for autohemotherapy? What other measures can be used when antihistamine therapy fails?*

M.D., New York.

Answer.—Autohemotherapy is not an accepted form of treatment for the urticaria or the dermatitis that follows the injection of penicillin. Autohemotherapy is used on an empirical basis in patients with psoriasis, seborrheic dermatitis, early in the course of herpes zoster, in fact, in conditions in which mild foreign protein effects are desired.

Antihistaminic therapy is the most satisfactory way of treating urticaria of both the acute and chronic types. It is frequently advisable to change from one type of antihistamine to another if the first is unsatisfactory. On occasion it has been found that giving two different antihistamines in alternation has some merit. Patients with urticaria of the chronic type, of long standing, in whom no food sensitivity is proved, are often helped by rest in bed or the removal of factors causing fatigue and boredom.

PLANTAR WARTS AND FOOT BATHS

To the Editor:—*Last spring we had a mild epidemic of plantar warts in school children; they seemed to be in those who used the gymnasium, changed into tennis shoes and, during the process, walked on the bare floor. We had used sodium thiosulfate in foot baths and wondered whether a change to calcium hypochlorite would be of benefit. Anything that you could recommend would be appreciated.*

W. R. Smith, M.D., Grand Marais, Minn.

Answer.—It is rather generally agreed that foot baths have little, if any, value as a prophylactic agent to prevent the spread of plantar warts. Children should be cautioned against walking on bare feet and instructed to use dry wooden clogs when walking on wet surfaces.

FEBRILE RELAPSING NONSUPPURATIVE PANNICULITIS

To the Editor:—*Kindly send me available information on the Weber-Christian Syndrome.*

W. Samuel A. Harris, M.D., Lancaster, Ky.

Answer.—The correct name of Weber-Christian syndrome is febrile relapsing nonsuppurative panniculitis. This name describes the disease. Subcutaneous fat tissue is the usual site, though the lesion may appear in other adipose tissue. Oftenest the lesions appear on the upper part of the thighs. They are rounded, reddish, somewhat tender swellings, averaging 1 inch (2.5 cm.) in diameter. As they heal, they leave depressions in the skin caused by atrophy of the fat cells; these persist. Patients have a spiking temperature curve lasting a few days to a few weeks. One or several (up to eight or 10) relapses occur after intervals of a few weeks or months during which the patient has no fever and no new lesions. The cause is unknown. Treatment is symptomatic; so far no antibacterial or antibiotic agent has proved curative.

FATIGABILITY

To the Editor:—*It is generally appreciated that "fatigability" can be a manifestation of many diseases, but the type of response given in the November 25 issue of* The Journal *exemplifies the attitude of many as to the importance of fatigue when no other symptoms or sign are apparent. The query stated that results of all laboratory tests were negative, the patient continued to complain of fatigue and the blood pressure was "low"; the reply was simply that the patient was fortunate to have a low blood pressure, and there was no further reference to the fatigue. This would imply to many that a diagnosis of neurasthenia (or some such term) should be next entertained, when in reality an appreciable percentage of these patients could be salvaged from this "waste basket" if some attention were paid to the writings of Rowe (Elimination Diets and the Patient's Allergies: A Handbook of Allergy, ed. 2, Philadelphia, Lea & Febiger, 1944), Randolph and co-workers (Fatigue and Weakness of Allergic Origin [Allergic Toxemia] to Be Differentiated from "Nervous Fatigue" or Neurasthenia, Ann. Allergy 3:418, 1946; and Food Allergy, Springfield, Ill., Charles C Thomas, Publisher, 1950) and Coca (Familial Nonreaginic Food Allergy, ed. 2, Springfield, Ill., Charles C Thomas, Publisher, 1945). It would appear that some effort in this regard would be more than rewarding if one of every three such patients were proved to have a constitutional allergic reaction primarily manifested as fatigue, in view of the number of such patients seen every day in general practice. They usually end up with a pat on the shoulder or an injection of liver extract, only to continue with their complaint. More attention should be paid to this and other "vague" complaints which are easily reproducible under provocative food-testing conditions. It is suggested that some effort be expended in the direction of differential diagnosis as far as allergic constitutional symptoms are concerned, before one glibly "reassures."*

Joseph Interlandi, M.D., Broadview, Ill.